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THE QUEENSLAND JOURNAL OF AGRICULTURAL SCIENCE

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SEPTEMBER, 1952.

THE NUTRITIVE VALUE OF SOME QUEENSLAND FODDERS.

By J. M. HARVEY, M.Sc., Senior Chemist, Biochemical Section, Chemical Laboratory, Division of Plant Industry.

SUMMARY.

The apparent digestibility of a number of Queensland fodders was determined. The nutritive value was assessed directly for both roughages and concentrates, using 2-3-year-old Merino wethers housed in metabolism crates.

Cereal grains and cereal by-products, with the exception of sorghum grain, showed digestibility figures comparable with those recorded by American and British workers. High levels of digestible protein and total digestible nutrients were found for the sorghum grain used in the studies.

Cottonseed meal showed digestibility data comparable with those recorded by overseas workers. Coconut meal was slightly higher in digestibility. The meatmeal used contained 72.5% crude protein, of which 92% was digestible. Mixtures of cereal and protein concentrates gave digestibility figures which were additive.

Lucerne chaff and cereal chaffs yielded data comparable with those recorded for corresponding overseas products. The digestibility data for Mitchell grasses (species of Astrebla) indicated the need for protein and phosphate supplementation to meet the maintenance requirements of sheep and cattle.

Rhodes grass (Chloris gayana) examined at intervals between 5 and 22 months after planting showed a marked fall in both digestible protein and total digestible nutrients. Samples collected 15-22 months after planting made a negative contribution to the animals' protein requirements.

The effect of supplementing poor-quality roughage with protein was examined. For a cereal chaff there was a 5% increase in total digestible nutrients. The apparent digestibility of poor-quality Rhodes grass was not increased by supplementation to give rations containing 5·0% and 6·9% crude protein. At higher levels of supplementation, to give rations of 10·4% and 15.8% crude protein, the digestibility of Rhodes grass was increased by approximately 10%.

The apparent digestibility of the leaves of three edible trees—mulga (Acacia aneura), kurrajong (Brachychiton populneum) and wilga (Geijera parviflora)—was determined. The leaves of the two varieties of mulga examined were low in total digestible nutrients and must be regarded solely as maintenance fodder for sheep. Kurrajong leaves, though higher in total digestible nutrients than mulga leaves, were unexpectedly low in digestible protein and would require supplementation with protein to meet the unspecific maintenance requirements of sheep. Wilga leaves were comparable in food value with good-quality hay.

INTRODUCTION.

During periods of drought in Queensland, many stock-owners endeavour to maintain all or some of their animals by supplementing the inadequate pasture with other feeds. In some districts the main feed becomes the leaves of native fodder trees which are brought by mechanical means within the reach of the sheep or cattle. Some owners use lucerne chaff or a cereal chaff as the basis of drought rations, while others depend on bush hay conserved on the property. In many cases, the basic ingredient in the drought ration is supplemented by cereal grains, cereal by-products, seed-cakes, or compound compressed pellets (" nuts ").

The rations usually recommended have for the most part been formulated on a somewhat empirical basis. For certain fodders, analyses obtained by the conventional proximate-analysis system have been compared with analytical data and digestibility figures obtained for corresponding fodders, and an estimate of the digestibility made. This method is open to question, since fodders grown and prepared under Australian conditions might not have the same digestibility coefficients as their overseas counterparts. In addition, there are some purely local fodders for which no digestibility data were available.

The studies reported here were conducted to ascertain the feeding value of important fodders in terms of digestible protein, total digestible nutrients, metabolizable energy, and starch equivalent. Though the digestibility trials were carried out with sheep, in the light of findings reported in recent literature (Lancaster, 1947 ; Watson *et al.*, 1948; Axelsson, 1949 ; Forbes and Garrigus, 1950) it would appear that they could be extended to cattle, and in the interpretation of the data it has been assumed that the findings are applicable to both sheep and cattle.

The nutritive values were assessed by digestibility trials using 4-6-tooth (2-3- year-old) Merino wethers. All animals were well grown, in strong condition and free from dental defects. Between trials they were allowed an interval of several weeks at pasture supplemented by good-quality lucerne chaff. Their previous history, prior to purchase, was satisfactory. They did not represent the "tail" of a flock culled as "poor doers." This "tail" sometimes represents those sheep which do not exhibit reflex closure of the oesophageal groove during the administration of anthelmintics containing copper sulphate, and which for physiological reasons might return different digestibility data for grain or milled food. Randomised selection of six animals which did not include "poor doers" gave a representative group from which to record the digestibility of the various fodders examined.

The sheep were housed in metabolism crates and fitted with harness to carry faeces bags. The design of the metabolism crate and of the harness and faeces bag has been described elsewhere (Harvey, 1942).

The procedure for each digestion study was as follows :—

(1) All fodder samples were air-dried before feeding ; pasture samples were prepared as chaff ; a representative specimen was taken for analysis at the commencement of the trial.

(2) The animals were allowed a pre-experimental period ranging from 7 to 10 days during which the daily appetite of each sheep for the fodder was assessed ; it was found desirable to maintain each sheep on an intake approximately 2 oz. (50 grams) less than full consumption, as this ensured no feed residues and hence no selectivity by the animals.

(3) The collection period was seven days ; the faeces from each animal were collected in individual containers, dried in a hot-air oven at 105°C. and weighed ; at the conclusion of the collection period the whole of the dried faeces from each animal was finely ground and a representative sample taken for anaylsis.

(4) The percentage of each digestible nutrient in the fodder was calculated from the input of that nutrient in total fodder consumed and its output in the total faeces voided during the 7-day collection period ; the digestibility figures recorded are the mean of the data from six sheep.

The procedure outlined by van Wyk, Oosthuizen and Basson (1951) was used in the calculation of total digestible nutrients (T.D.N.), starch equivalent and metabolizable energy (M.E.) per 100 lb. of dry material.

T.D.N. represents digestible protein + (digestible fat x 2·25) + digestible crude fibre + digestible nitrogen-free extract. Starch equivalent represents (digestible protein x 0·94) + (digestible fat x 1·91) + (digestible crude fibre x 1·0) + (digestible nitrogen-free extract x 1·0).

In the case of fodders with a total crude fibre content of more than 16%, 0·58 lb. of starch equivalent is deducted for every 1% of crude fibre contained in the fodder.

Metabolizable energy is calculated from the following factors :—

Nutrient.	Kind of Fodder.	M.E. per gram. digestible organic material. (calories).
Protein	Roughages	4·3
	Concentrates	4·5
Fat	Roughages	7·8
	Silage	3·3
	Cereals	8·3
	Oil-seeds	8·8
	Of animal origin	9·3
Carbohydrate (nitrogen-free extract) (mean)	All	3·7
Crude fibre	All	2·9

Digestibility values were determined directly for each feedstuff. Even for concentrates it was considered unnecessary to adopt the digestibility-by-difference method, in which the concentrate in question is fed with roughage of known digestibility and the effect of the latter deducted. Investigations of drought-feeding methods had previously shown that grown sheep could be maintained without roughage for periods up to 450 days without any untoward effects. During the studies with concentrates reported here, rumination was suppressed after the first few weeks in the absence of roughage ; at the conclusion of the experiment normal rumination was induced within 10 days by carefully introducing roughage into the diet.

RESULTS.

Cereal Grains and Cereal By-products.

The data obtained for various cereal grains and cereal by-products are given in Tables 1-3.

Table 1.

Composition of Cereal Grains and Cereal By-products on a Moisture-free Basis.

Feed.	Crude protein.	Fat.	Crude fibre.	Ash.	N.F.E.	Lime (CaO).	Phosphoric acid (P_2O_5).
	%	%	%	%	%	%	%
Maize	11·0	5·1	4·3	1·5	78·1	0·001	0·840
Wheat	16·4	1·9	3·3	1·9	76·5	0·032	0·914
Sorghum	13·3	2·5	3·2	1·4	79·6	0·060	0·717
Bran	19·6	3·9	10·4	5·9	60·2	..	..
Pollard	19·2	4·4	7·0	4·3	65·1	0·076	1·74
Rice pollard	12·6	16·3	13·5	11·6	46·0	0·007	3·33

Table 2.

DIGESTIBILITY OF CEREAL GRAINS AND CEREAL BY-PRODUCTS.

Feed.	Dry material.	Crude protein.	Fat.	Fibre.	N.F.E.
	%	%	%	%	%
Maize ..	89·7	83·1	93·7	46·9	95·5
Wheat ..	88·1	89·6	82·8	23·0	93·0
Sorghum ..	92·2	78·8	73·8	73·6	96·1
Bran ..	68·5	84·2	86·5	28·2	74·9
Pollard ..	79·7	86·3	87·6	23·7	86·6
Rice pollard	73·9	70·6	94·1	43·5	84·2

Table 3.

DIGESTIBLE PROTEIN, TOTAL DIGESTIBLE NUTRIENTS, METABOLIZABLE ENERGY, AND STARCH EQUIVALENT PER 100 LB. OF DRY (MOISTURE-FREE) MATERIAL OF CEREAL GRAINS AND CEREAL BY-PRODUCTS.

Feed.	Digestible protein.	T.D.N.	M.E.	Starch equivalent.
	Lb.	Lb.	Therms.	Lb.
Maize	9·1	96·5	164·5	94·4
Wheat	14·4	89·7	155·4	89·3
Sorghum	10·5	93·4	159·8	92·2
Bran	16·5	72·0	126·0	69·9
Pollard	16·6	83·5	145·4	81·1
Rice pollard ..	8·9	87·9	148·3	82·2

The data recorded have been compared with those published by British and American workers (Wood, 1932; Morrison, 1938) and with the data on the digestibility of various feeds throughout the world compiled by Schneider (1947). The results of these comparisons may be summarised as follows :—

(1) *Maize.*—The values are comparable with those found by all workers using a product of similar quality.

(2) *Wheat.*—As for maize.

(3) *Sorghum.*—Both protein content and total digestible nutrients are higher than those recorded in the literature.

(4) *Bran and Pollard.*—The digestibility values are intermediate between those recorded by American and British workers, respectively.

(5) *Rice pollard.*—The level of total digestible nutrients is higher than that recorded in the literature.

Protein Concentrates.

Values for the various protein concentrates examined are recorded in Tables 4-6.

Table 4.

Composition of Protein Concentrates on a Moisture-free Basis.

Feed.	Crude protein.	Fat.	Crude fibre.	Ash.	N.F.E.	Lime (CaO)	Phosphoric acid (P_2O_5).
	%	%	%	%	%	%	%
Cottonseed meal	47·1	7·3	11·2	6·1	28·3	0·205	2·48
Coconut meal	22·6	8·2	14·0	5·7	49·5	0·10	1·31
Meatmeal	72·5	9·0	..	18·5	..	4·32	4·38
Cottonseed meal + maize meal (ratio 1 : 14)	13·9	4·0	3·5	1·7	76·9	..	..
Coconut meal + maize meal (ratio 1 : 8)	12·7	4·1	4·3	1·9	77·0	..	..

Table 5.

Digestibility of Protein Concentrates.

Feed.	Dry material.	Crude protein.	Fat.	Fibre.	N.F.E.
	%	%	%	%	%
Cottonseed meal ..	72·7	84·6	91·0	43·0	66·0
Coconut meal	82·9	82·4	96·7	78·8	84·3
Meatmeal	81·5	92·0	98·1	..	..
Cottonseed meal + maize meal (ratio 1 : 14) ..	89·3	82·6	89·4	42·9	94·5
Coconut meal + maize meal (ratio 1 : 8) ..	88·2	78·9	89·7	49·6	94·3

Table 6.

Digestible Protein, Total Digestible Nutrients, Metabolizable Energy, and Starch Equivalent per 100 lb. of Dry (Moisture-free) Material of Protein Concentrates.

Feed.	Digestible protein.	T.D.N.	M.E.	Starch equivalent.
	Lb.	Lb.	Therms.	Lb.
Cottonseed meal	39·8	78·2	145·0	73·5
Coconut meal	18·6	89·1	152·5	85·3
Meatmeal	66·7	86·5	173·2	79·5
Cottonseed meal + maize meal (ratio 1 : 14)	11·3 (calculated)	93·9	161·2	92·0
	11·7 (found)	93·8	161·0	91·9
Coconut meal + maize meal (ratio 1 : 8)	10·6 (calculated)	92·9	159·4	92·0
	10·0 (found)	93·1	159·3	91·3

These findings have been compared with the data recorded by overseas workers. The results may be summarised as follows :—

(1) *Cottonseed meal.*—The findings are comparable with those of overseas workers using a product of similar quality.

(2) *Coconut meal.*—Digestibility is slightly higher than that recorded in the literature.

(3) *Meatmeal.*—The protein of the exceedingly rich product used is almost entirely digestible.

(4) The digestibility trials using mixed products of cottonseed and maize meal, and coconut and maize meal, show that at the ratios fed the digestibility figures are additive.

Roughages.

The data obtained for various roughages examined are recorded in Tables 7-9.

Table 7.

Composition of Dry Roughages on a Moisture-free Basis.

Feed.	Crude protein.	Fat.	Crude fibre.	Ash.	N.F.E.	Lime (CaO).	Phosphoric acid (P_2O_5).
	%	%	%	%	%	%	%
Lucerne chaff	20·4	1·9	17·4	14·6	45·7	..	..
Oaten chaff	6·2	3·3	29·9	6·1	54·5	0·176	0·199
Wheaten chaff	9·8	2·1	24·9	8·1	55·1	0·72	0·216
Mitchell grass (1)	4·4	1·2	36·5	11·7	46·2	0·470	0·116
,, ,, (2)	5·1	1·1	34·8	9·6	49·4	0·212	0·145
,, ,, (3)	5·6	1·2	35·8	11·9	45·5	0·60	0·160
,, ,, (4)	8·1	1·0	37·1	9·6	44·2	0·314	0·301
Rhodes grass (A)	6·0	0·9	36·0	8·7	48·4	..	..
,, ,, (B)	6·1	0·9	35·4	9·6	48·0	..	..
,, ,, (1)	11·1	1·1	39·8	10·9	37·1	0·490	0·60
,, ,, (2)	6·9	1·4	39·4	10·9	41·4	0·609	0·642
,, ,, (3)	8·2	1·1	37·4	10·7	42·6	0·565	0·838
,, ,, (4)	5·9	1·1	34·9	10·6	47·5	0·421	0·674
,, ,, (5)	7·0	1·2	34·3	11·5	46·0	0·570	0·640
,, ,, (6)	6·5	1·1	34·4	10·4	47·6	0·490	0·450
,, ,, (7)	3·1	0·9	34·7	13·1	48·2	0·556	0·443
,, ,, (8)	3·5	0·9	32·0	10·5	53·1	0·409	0·527
,, ,, (9)	2·4	0·9	35·9	11·3	49·5	0·443	0·455
,, ,, (10)	2·8	0·7	38·8	9·5	48·2	0·574	0·319
,, ,, (11)	2·8	0·7	35·4	11·0	50·1	0·489	0·464
Oaten chaff + cottonseed meal (ratio 3 : 1)	17·2	4·5	24·9	6·2	47·2	..	..
Oaten chaff + meatmeal (ratio 6 : 1)	15·3	4·1	25·6	8·3	46·7	..	..
Rhodes grass (11) + cottonseed meal (ratio 20 : 1) ..	5·0	1·0	34·3	10·8	48·9	..	..
Ditto (ratio 10 : 1)..	6·9	1·2	33·2	10·8	47·9	..	..
Ditto (ratio 5 : 1)..	10·4	1·8	31·5	10·3	46·0	..	..
Ditto (ratio 5 : 2)..	15·8	2·5	28·7	9·8	43·2	..	..

Table 8.

DIGESTIBILITY OF DRY ROUGHAGES.

Feed.	Dry material.	Crude protein.	Fat.	Fibre.	N.F.E.
	%	%	%	%	%
Lucerne chaff	62·2	77·0	62·3	27·9	79·4
Oaten chaff	54·2	50·4	65·0	44·6	62·7
Wheaten chaff	58·6	58·9	51·3	53·1	65·9
Mitchell grass (1)	40·5	4·5	21·3	52·7	42·1
,, ,, (2)	37·6	26·7	45·4	46·8	37·5
,, ,, (3)	46·0	39·0	56·0	54·0	57·0
,, ,, (4)	50·4	56·5	46·1	61·2	46·2
Rhodes grass (A)	46·8	42·7	25·3	52·6	46·7
,, ,, (B)	44·2	41·0	11·5	48·5	44·2
,, ,, (1)	55·3	66·4	48·7	62·5	48·0
,, ,, (2)	45·6	44·7	46·8	52·1	43·3
,, ,, (3)	45·7	46·4	35·2	56·6	44·4
,, ,, (4)	41·0	23·1	33·6	52·8	43·0
,, ,, (5)	55·3	52·3	45·9	64·4	54·5
,, ,, (6)	42·5	42·5	48·7	49·7	43·9
,, ,, (7)	46·9	−ve	37·4	58·9	47·1
,, ,, (8)	46·6	5·8	29·5	53·5	52·7
,, ,, (9)	32·4	−ve	21·9	49·0	32·9
,, ,, (10)	32·0	−ve	7·7	46·5	30·8
,, ,, (11)	37·8	−ve	33·5	53·1	40·0
Oaten chaff + cottonseed meal (ratio 3 : 1)	62·0	75·5	84·1	51·5	65·5
Oaten chaff + meatmeal (ratio 6 : 1)	62·2	77·5	85·5	53·1	66·0
Rhodes grass (11) + cottonseed meal (ratio 20 : 1)	40·0	22·4	66·4	54·2	41·8
Ditto (ratio 10 : 1)	37·7	42·0	57·0	46·1	41·7
Ditto (ratio 5 : 1)	50·4	64·9	87·2	56·0	47·9
Ditto (ratio 5 : 2)	55·0	75·1	87·8	57·1	53·1

Table 9.

DIGESTIBLE PROTEIN, TOTAL DIGESTIBLE NUTRIENTS, METABOLIZABLE ENERGY AND STARCH EQUIVALENT PER 100 LB. OF MOISTURE-FREE MATERIAL OF DRY ROUGHAGES.

Feed.	Digestible protein.	T.D.N.	M.E.	Starch equivalent.
	Lb.	Lb.	Therms.	Lb.
Lucerne chaff	15·7	59·6	102·2	48·2
Oaten chaff	3·4	55·5	89·0	37·4
Wheaten chaff	5·8	57·8	93·5	42·6
Mitchell grass(1)	0·2	39·6	59·5	18·2
„ „ (2)	1·4	37·2	57·0	16·8
„ „ (3)	2·2	48·5	74·9	27·1
„ „ (4)	4·6	48·8	74·8	26·9
Rhodes grass (A)	2·6	44·6	68·6	23·5
„ „ (B)	2·5	41·1	63·5	20·5
„ „ (1)	7·4	51·2	78·8	28·0
„ „ (2)	3·1	43·1	64·8	20·0
„ „ (3)	3·8	44·8	68·0	22·8
„ „ (4)	1·4	41·1	62·2	20·7
„ „ (5)	3·7	51·6	79·7	31·6
„ „ (6)	2·8	42·0	64·8	21·8
„ „ (7)	−ve	43·8	66·0	23·6
„ „ (8)	0·2	45·9	70·5	27·3
„ „ (9)	−ve	34·3	51·2	13·5
„ „ (10)	−ve	32·8	48·9	10·3
„ „ (11)	−ve	39·2	59·0	18·5
Oaten chaff + cottonseed meal (ratio 3 : 1)	13·0 (calculated)	62·0	103·2	46·8
	13·0 (found)	65·2	108·9	48·8
Oaten chaff + meatmeal (ratio 6 : 1)	12·2 (calculated)	60·9	101·0	43·5
	11·9 (found)	64·2	107·6	47·5
Rhodes grass (11) + cotton-seed meal (ratio 20 : 1) ..	1·9 (calculated)	41·2	63·0	21·0
	1·1 (found)	41·7	63·1	21·9
Ditto (ratio 10 : 1) ..	3·6 (calculated)	42·7	66·2	23·4
	3·0 (found)	40·3	62·3	20·8
Ditto (ratio 5 : 1) ..	6·9 (calculated)	45·5	73·5	27·4
	6·7 (found)	50·1	79·4	30·6
Ditto (ratio 5 : 2) ..	11·7 (calculated)	50·3	82·4	34·1
	11·9 (found)	56·1	91·8	38·1

The following comments are made on the results.

(1) *Lucerne.*—The lucerne used in this trial was choice-quality leafy chaff. The digestibility data obtained are comparable with those recorded by overseas workers using lucerne of similar quality.

(2) *Cereal Chaffs.*—The oaten chaff and the wheaten chaff represented products of average quality and the digestibility data compare with those found by overseas workers.

The effect of protein supplementation on the digestibility of oaten chaff was also examined. Two sources of protein supplements were used—a vegetable-protein meal (cottonseed meal) and an animal-protein meal (meatmeal). The ratio of each supplement to the basal oaten chaff was adjusted to give a ration comparable with good-quality lucerne chaff. At the rate of supplementation and for both types of protein meal used in these studies, two conclusions were drawn : —

(*a*) There is no increase in the digestibility of the protein from oaten chaff. It was found that the digestible protein from each of these rations approximates very closely to the sum of the digestible protein from oaten chaff and the digestible protein from cottonseed meal or meat-meal as determined by individual digestion trials.

(*b*) There is an increase of approximately 5% in the total digestible nutrients of the ration as compared with the total digestible nutrients from individual trials on oaten chaff and each of the protein supplements, indicating that protein supplementation enables the animal to make better use of the basal ration of oaten chaff.

(3) *Mitchell Grass.*—The digestibility data were determined for four samples of Mitchell grass taken from stocks of baled Mitchell grass hay, chiefly *Astrebla lappacea*, conserved on four sheep properties in western Queensland and set aside as a fodder reserve for times of drought. The procedure adopted in the conservation of Sample 3 has been discussed elsewhere (Marriott and Harvey, 1951). The following conclusions may be drawn from these studies :—

(*a*) The digestibility of Mitchell grass is very closely related to the crude protein content.

(*b*) Sample 1, which contained 4·4% crude protein, has virtually no digestible protein, and total digestible nutrients are equivalent to those recorded for oaten straw.

(*c*) Samples 3 and 4 are more nearly comparable with fair-quality oaten hay.

(*d*) Samples 1, 2, and 3 would require protein supplementation to meet the maintenance protein requirements of sheep and cattle.

(*e*) The level of phosphoric acid in all samples is closely related to the protein content. Samples 1, 2 and 3 would require a phosphate supplement to meet the maintenance phosphate requirements of cattle.

(4) *Rhodes Grass.*—The following field information must be considered in conjunction with the digestibility data for Rhodes grass (*Chloris gayana*) recorded in Tables 7-9 and Fig. 1 :—

(*a*) All samples were taken between 1937 and 1939 at the Callide Cotton Research Station (now Biloela Regional Experiment Station).

(*b*) All samples were grown on soil high in nitrogen following continuous cotton cultivation for three years.

(*c*) Samples A and B were taken in September and October 1937 and represent Rhodes grass in the first year of growth.

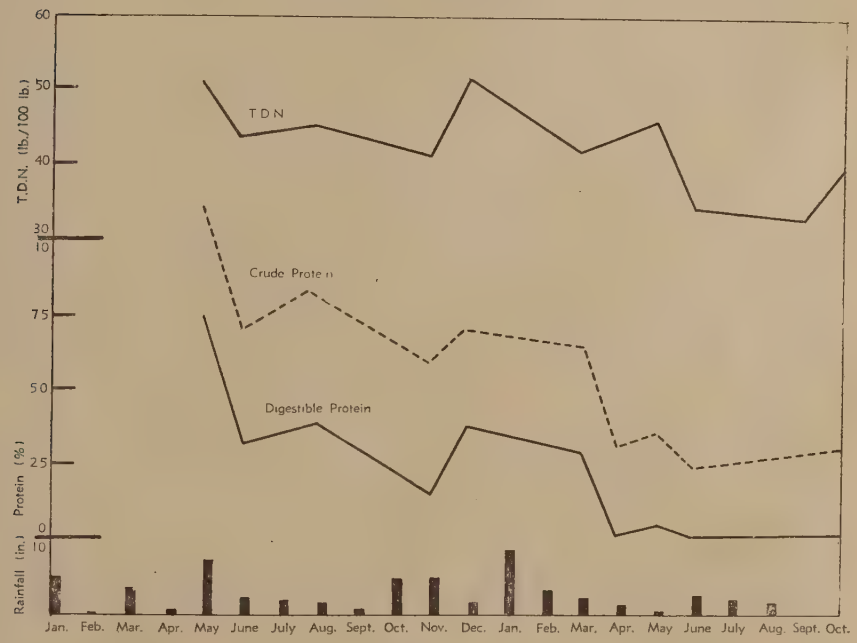

Fig. 1.

Graph Showing the Variation in the Nutritive Value of Rhodes Grass with Age of the Stand. The block was sown on December 7, 1937, and sampling began in May 1938.

(*d*) Samples 1-11 were taken from an area planted to Rhodes grass on 7–12–37 after three years of cotton. There was ample subsoil moisture at the time of planting, and the monthly rainfalls during the collection period were as follows :—

Month.	Rainfall.	Comments.
1938.	in.	
January	4·60	Slightly above normal
February	0·05	Dry
March	3·40	Above normal
April	0·67	Below normal
May	7·00	Above normal
June	1·79	Slightly below normal
July	1·79	Slightly above normal
August	1·45	Above normal
September	0·42	Below normal
October	4·22	Above normal
November	4·40	Above normal
December	1·48	Below normal
1939.		
January	8·07	Above normal
February	2·70	Below normal
March	1·78	Below normal
April	1·30	Below normal
May	0·12	Below normal
June	2·08	Normal
July	1·50	Slightly below normal
August	1·25	Slightly below normal

The periods at which the samples were collected and the time intervals since the planting of this area to Rhodes grass in December 1937 are as follows :—

Sample No.	Month of Collection.	Period Since Planting.
	1938.	Months.
1	May	5
2	June	6
3	August	8
4	November	11
5	December	12
	1939.	
6	March	15
7	April	16
8	May	17
9	June	18
10	September	21
11	October	22

The following conclusions may be drawn from examination of both field and digestibility data :—

(*a*) Sample 1 is high in digestible protein, being intermediate in value between oaten chaff and fair-quality lucerne chaff; the total digestible nutrients are comparable with those recorded for oaten chaff.

(*b*) The remaining samples show a marked fall in protein content with a corresponding reduction in total digestible nutrients. This is shown graphically in Fig. 1.

(*c*) For Samples 2-6, harvested 6-15 months after planting, the feeding value remained relatively constant. The digestible protein content of these samples approximates that of oaten chaff, but the total digestible nutrients and starch equivalent are much lower.

(*d*) Samples 7-11, collected 15-22 months after planting, show a marked deterioration in protein content; the protein level has made a negative contribution to the animals' economy. The deterioration in protein is most marked in Samples 9 and 11, the feeding value of which is below that of oaten straw.

(*e*) All samples taken after 15 months' growth would require a protein supplement to meet the animals' maintenance requirements. Such supplementation was examined, using cottonseed meal at various levels as a supplement to Rhodes grass (Sample 11). Two important features are shown by these supplementation trials, viz. :—

(i) Cottonseed supplementation of poor-quality Rhodes grass at ratios of 20 : 1 and 10 : 1, to give rations of crude protein content of 5·0% and 6·9% respectively, does not increase the digestibility of the basal Rhodes grass. The apparent digestible protein content of the two rations is lower than that calculated from individual digestibility trials on Rhodes grass and cottonseed meal. This is no doubt due to the method of calculation, in which the negative digestible protein content of the Rhodes grass has been considered as zero.

(ii) Cottonseed supplementation of poor-quality Rhodes grass at ratios of 5 : 1 and 5 : 2, to give rations with crude protein contents of 10·4% and 15·8% respectively, increased the digestibility of the basal Rhodes grass by approximately 10%.

(*f*) The levels of phosphoric acid recorded in samples of Rhodes grass used in these trials all exceed the maintenance requirements of stock. This is not necessarily true for Rhodes grass grown under different conditions.

Leaves of Edible Trees.

Digestibility trials were conducted with the leaves of four of the most common fodder trees found in the arid and semi-arid pastoral areas of Queensland. The results are recorded in Tables 10-12.

Table 10.

Composition of Leaves of Edible Trees on a Moisture-free Basis.

Fodder.	Crude protein.	Fat.	Crude fibre.	Ash.	N.F.E.	Lime (CaO).	Phosphoric acid (P_2O_5).
	%	%	%	%	%	%	%
Umbrella mulga (*Acacia aneura*)	12·8	1·1	32·9	6·0	47·2	1·50	0·15
Whipstick mulga (*Acacia aneura*)	13·4	2·2	27·9	5·0	51·5	..	..
Kurrajong (*Brachychiton populneum*)	9·6	3·9	29·6	5·7	51·2	2·03	0·37
Wilga (*Geijera parviflora*) ..	14·2	7·0	19·0	11·6	48·2	5·03	0·51

Table 11.

Digestibility of Leaves of Edible Trees.

Fodder.	Dry material.	Crude protein.	Fat.	Fibre.	N.F.E.
	%	%	%	%	%
Umbrella mulga ..	36·7	27·3	—ve	29·8	53·1
Whipstick mulga ..	37·4	33·6	—ve	21·9	54·0
Kurrajong	52·1	15·6	43·6	35·1	69·9
Wilga	46·8	45·0	55·7	54·7	58·1

Table 12.

Digestible Protein, Total Digestible Nutrients, Metabolizable Energy, and Starch Equivalent per 100 lb. of Moisture-free Material of Leaves of Edible Trees.

Fodder.	Digestible protein.	T.D.N.	M.E.	Starch equivalent.
	Lb.	Lb.	Therms.	Lb.
Umbrella mulga ..	3·5	38·4	62·3	19·3
Whipstick mulga ..	4·5	38·4	63·5	21·9
Kurrajong	1·5	51·5	82·8	33·6
Wilga	6·4	53·6	87·0	40·8

Following is a summary of the results :—

(1) *Mulga.*—Both varieties are readily eaten by sheep but are low in total digestible nutrients. This is unexpected in view of the composition on a moisture-free basis, which would indicate a fodder intermediate between good-quality oaten chaff and fair-quality lucerne chaff. The percentage of dry material digested is low, being comparable with that recorded for Mitchell grass hay of low protein content and Rhodes grass hay cut late in the second year of growth. The percentage of protein digested is low compared with other fodders, but because of the relatively high crude protein content, this digestible protein level would still meet the unspecific

maintenance requirements of sheep. The total digestible nutrients, metabolizable energy and starch equivalent values all indicate that the leaves of mulga must be regarded as a fodder for maintenance rather than for production. This is in keeping with the views of some experienced pastoralists, who regard mulga leaves as a good drought-feed reserve for mature sheep, but one on which it is not possible either to maintain pregnant ewes or to raise satisfactory lambs (Everist, 1949; M. White, personal communication, 1951).

The ash analysis indicates a low level of phosphoric acid superimposed on a very wide calcium-to-phosphorus ratio. The phosphoric acid content of mulga leaves would not be expected to meet the maintenance requirements of even mature stock held on this diet for long periods.

(2) *Kurrajong.*—This fodder was not so well eaten as mulga during the course of the digestibility trial. All animals showed a tendency to "scour" during their third week on this diet. The percentage of dry material digested is much higher than that of mulga and is comparable with that recorded for fair-quality oaten chaff. The percentage of the crude protein which was digested is unexpectedly low, even in comparison with mulga leaves. The digestible protein content of kurrajong is similar to that recorded for Mitchell grass hay of low protein content and would not meet the maintenance requirements of mature sheep. The total digestible nutrients, metabolizable energy and starch equivalent values compare with those found for fair-quality oaten chaff. The ash analysis indicates that kurrajong leaves are high in lime and fair in phosphoric acid. The Ca : P ratio is wide. Where kurrajong is the sole source of fodder for sheep, some protein supplementation would be necessary.

(3) *Wilga.*—The leaves of this tree were very readily eaten and well digested by sheep. The digestible protein content is intermediate between those recorded for good-quality oaten chaff and fair-quality lucerne chaff respectively. The total digestible nutrients, metabolizable energy and starch equivalent values all indicate a fodder comparable with good-quality hay. The ash analysis shows a very high lime content and a very wide Ca : P ratio. The phosphoric acid level should be adequate for stock.

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STUDIES IN THE ENVIRONMENT OF QUEENSLAND.

2. The Climatic Factor in Drought.

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SUMMARY.

An attempt was made to establish climatic criteria of drought under pastoral conditions in semi-arid Queensland and to correlate them with conditions actually experienced. Monthly precipitation/evaporation values were calculated and theoretical minimum requirements for effective rainfalls based on P/E factors of 0·3 for May, June, July and August, 0·25 for September October, March and April, and 0·2 for November, December, January and February, were calculated.

The figures so obtained were used to construct grids showing effectiveness or otherwise of monthly rainfalls at 49 stations for every year of record between 1894 and 1951. From the grids, tables were prepared showing the number of years within the 58-year period when particular months were "wet" or "dry." The frequencies of two months of effective rainfall in late summer were tabulated and tables constructed showing the frequency distribution of monthly rain in class intervals of 1 inch.

An analysis of growing periods is presented and droughts have been tabulated according to their frequency, duration and months in which they began and ended. A figure showing the sequence of years assessed as good to fair, mediocre, bad or with no effective rain is also presented. From this it is possible to see the nature of the season at any station in any year since records began. A climatic year was considered to begin on October 1.

The study has shown that, though droughts have been irregular in their incidence and have followed no discernible pattern or cycle, they are a normal part of the climate of semi-arid Queensland. State-wide droughts have occurred infrequently. The nature and duration of droughts have varied widely, ranging from a single bad year to a succession of mediocre or mediocre and bad years. The economic implications of various kinds of droughts are considered and the effects of drought on pastures and on sheep husbandry are discussed.

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INTRODUCTION.

In the first paper of this series (Farmer, Everist and Moule, 1947) climatic zones in semi-arid pastoral Queensland, based on the distribution of effective rainfall normal to different parts of the region, were defined. In this paper, attention is focussed on the incidence and severity of dry periods.

The term "drought" as commonly used cannot be divorced from land utilisation. Precipitation too meagre to produce growth of crops may be adequate for pasture. Also, an amount of rain which would give normal growth of indigenous pasture in one area may in another district be quite inadequate. Obviously, climatic criteria for drought must vary with the type of crop grown, the pasture species and the soil type as well as the locality.

The primary effect of continued dearth of rain is to cause deterioration of pasture, either by failure of plants to grow or germinate or by reduction of soil moisture to such an extent that perennial plants cannot maintain themselves. Such deterioration may be merely temporary or it may be permanent, but in any case it usually results in partial or complete starvation of grazing animals.

In this study an attempt has been made to correlate periods when flocks are known to have been adversely affected by shortage of pasture due to lack of effective rain with the precipitation pattern during those periods. Climatic criteria for drought thus established were used in examining available rainfall records in an attempt to determine frequency of droughts and their duration in various localities. Drought has been considered only from the point of view of sheep-raising, and the conclusions reached are not necessarily valid for crop production or for cattle husbandry. Because of differences in the normal climatic pattern, it is not possible to use the same criteria for drought throughout the whole of the region considered, and different standards have been adopted for different areas.

LITERATURE.

Many climatologists have realised the significant influence which drought has had upon Australia's primary industries, but few studies of its occurrence have been reported.

Attempts have been made to assess the reliability of wet seasons. Lawrence (1937) classified the climate of New South Wales according to a modification of the Köppen system, and presented maps showing the number of years between 1900 and 1935 in which a "desert" year occurred in each area and the conditions existing in each year in all parts of New South Wales. In a later paper (Lawrence, 1941), tables showing the frequency of effective rainfall in each month during the period 1916-37 were given.

Wark (1941) calculated for five stations in South Australia the percentage of years with influential rainfall periods of three and five months' duration and the percentage of years with a continuous drought of at least five months. Following Trumble (1939), he used the interval of time in which monthly rainfall exceeds

one-third of the monthly evaporation as representing a period of influential rainfall. Trumble (1945) applied similar methods to the data for districts in which the fat lamb industry is conducted in South Australia.

In the Third Report of The Rural Reconstruction Commission (1944), the importance of drought was stressed and the occurrence of the growing period in all parts of Australia (using a P/E value 0·3 as a criterion) was given. No attempt was made to study individual years and mean values were used. One map, prepared by the Meteorological Bureau, gave the average deviation, as a percentage of the normal average rainfall, for each district, and attention was drawn to the remarkably high variability in Queensland.

Some writers, notably Jones (1931) and Quayle (1938), endeavoured to explain the occurrence of drought in terms of sunspot cycles, each cycle being of approximately 11 years' duration. Quayle, by a study of the rainfalls of a number of Australian stations, found indications that the seasons vary with sunspot activity and that after the sunspot maximum is reached the rainfall declines to produce a drought every third year.

Miles (1947) used de Martonne's Index of Aridity to define " wet " months and " dry " months and from these calculated the length of the growing season in Queensland. In cases where dry autumn months separated wet summer from wet winter months, only the summer season was considered. The carry-over effect of heavy rains was not taken into consideration.

White (1951), in a study of drought in New South Wales, introduced the concepts of an " initial effective rainfall " necessary to initiate plant growth following drought and an " effective carryover " to maintain this growth. The effective carry-over was taken to be 70% of the minimum initial effective rainfall value. He did not take into consideration the fact that many perennial species in the area are adapted to maintain themselves without making growth during a rainless period and in this condition are still useful as forage for grazing animals. White's minimum effective rainfall values are lower than those used in this paper for the region immediately to the north of the area considered by him. In addition, the type of drought he defines, based on reports by observers, could also result from excessive grazing pressure. His graphical method of determining drought was developed for an area which enjoys a better annual distribution of rainfall than semi-arid pastoral Queensland. This is probably why this method could not be applied successfully to the tropical and subtropical environment of pastoral Queensland.

METHODS.

Mean monthly evaporation figures for 49 stations were calculated from Davidson's (1935) formula, $E = K \times s.d.$, where

E is evaporation in inches,

s.d. is saturation deficit,

K is a constant.

The following values were assigned to K :—

K = 16 : Camooweal, Cloncurry, Kynuna, Richmond, Hughenden, Torrens Creek, Urandangie, Boulia, Winton, Longreach, Barcaldine, Alpha, Jericho, Aramac, Jundah, Isisford, Blackall, Listowel Downs, Tambo, Augathella, Windorah, Adavale, Charleville, Morven, Boatman, Wyandra, Cunnamulla, Thargomindah, South Comongin, Eulo.

K = 18 : Bollon, St. George, Surat, Mitchell, Muckadilla, Roma, Yuleba, Miles, Taroom, Goondiwindi, Talwood, Thallon, Dirranbandi.

K = 20 : Dalby, Pittsworth, Warwick.

The values were based upon the geographical position of the stations in relation to the evaporation stations listed by Farmer, Everist and Moule (1947, p. 28). This list showed that for stations north of Charleville, K is approximately 16 in most months ; for St. George, it fluctuates from 16·7 to 20·2, with an average value of 18·5, so as an approximation, the value 18 for K was used for stations in the St. George-Roma area. Similarly, the value of 20 was used for stations on the Darling Downs, based on the figures for Warwick, which give an average of 21·6. The other stations are somewhat further from the coast than Warwick and could be expected to have slightly lower values.

A number of workers (Davidson, 1935 ; Prescott, 1938 ; Trumble, 1939 ; Lawrence, 1941 ; and Farmer, Everist and Moule, 1947) have used P/E values (P = rainfall in inches ; E = evaporation in inches) as a measure of effective rainfall. Two criteria were used for Queensland by Farmer, Everist and Moule—P/E exceeding 0·2 for the summer months (October-March) and P/E exceeding 0·3 for the winter months (April-September). These were found to result in abrupt changes in the minimum value for effective rain. While such changes did not affect the zonation given by these authors, it was considered desirable for the present study to use the interpolated value of 0·25 for the months September, October, March and April. This is believed to be closer to the actual requirement than would be indicated by the use of either 0·2 or 0·3 for the intermediate months.

Minimum monthly requirements to give effective rainfalls were based on a P/E factor of :—

0·3 for the months of May, June, July, August ;
0·25 for the months of September, October, March, April ;
0·2 for the months of November, December, January, February.

For every station, the recorded rainfall in each month of each year between 1894 and 1951 was compared with the estimated effective rainfall for that month and classified as being effective or not. Rainfall figures were obtained from a number of property managers for comparison with official records, which are generally registered in towns. The differences were slight and insufficient to alter the data significantly, so they have been neglected.

The classifications were plotted on grids, which are presented in Figs. 1-49. From these grids, calculations of the number of years within the 58-year period in which estimated effective rainfall was received in each calendar month were made. The figures are given in Table 1, together with monthly rainfall means and estimated minimum effective rainfall for each month. Results for stations for which data are not available for the full 58 years are shown in Table 2.

The 58-year period of records is the longest available for the majority of stations. Frequencies have been expressed as fractions of 58, not as percentages. To use a percentage figure would magnify unreasonably the effect of small differences. For example, at Urandangie effective rain has fallen in July in six out of 58 years (6/58). On a percentage basis this would become 10%, but the period of record is not long enough to justify the assumption that in the next 42 years the actual July rainfall will equal or exceed the minimum effective rain on four occasions. For the same reason, the figures cannot safely be used as a true indication of probability, though they may illustrate the trend at various stations.

The frequency of two months of effective rainfall in the late summer months of January, February and March was also determined for each centre and the values are presented in Table 3. In most sheep-raising areas in Queensland, two months' effective rainfall within the period January to March is essential if perennial plant species are to make growth sufficient to be of value as pasture.

The frequency distribution of monthly rain in class intervals of 100 points (100 points = 1 inch) was determined from official records. These are presented in Table 4, which also includes accumulated totals indicating the number of years in which more than the minimum value for each class was received (e.g., the table shows that at Boulia between 201 and 300 points were recorded in January in four years out of 58 ; it also shows that in 14 of those 58 years, the January rainfall exceeded 201 points).

The grids (Figs. 1-49) were also used as a basis for an analysis of " growing periods," which were grouped into three categories—" summer." "winter " and " overlapping."

A summer growing period is defined as one entirely within the period October to March inclusive, and a winter period as one entirely within the period April to September. Overlapping periods are those which extend from summer into winter or from winter into summer. For example, a growing period of three months beginning in December and ending in March would be classed as " summer " ; a period from May to July as " winter " ; and a period of four months beginning in January and ending in May as " overlapping."

The length of the growing period is defined as the number of consecutive months receiving effective rainfall. Table 5 shows the frequency of growing periods of various lengths during 58 years at each station.

The grids were also used for a study, on somewhat similar lines, of periods of no effective rain. For each station these were tabulated according to their frequency and length and the months in which they began and finished. In the

region under consideration, dry periods shorter than four months are not regarded as droughts in the pastoral sense, and though they are included in the table, they are not considered in the totals. It was assumed that a drought commenced with the first dry month following one or more months of effective rainfall and that it ended at the next month with effective rain. The results are presented in Table 6.

Rainfall records were then examined on a yearly basis. The years used were not calendar years but periods of 12 months from October to September. In Queensland the principal rainfall period is from November to March. The conventional break between December and January thus divides a single rainfall period between two years. In this study, a year was taken as the 12 months beginning on October 1.

For each station, each year was assessed as being good to fair, mediocre, or bad for sheep-raising or as having received no effective rainfall. Standards for these categories were chosen for each station according to the amount and distribution of its annual rainfall and its geographical position as well as from personal knowledge of the behaviour of pasture and animals at each station. These standards are presented in Table 7.

Assessment of individual years was based on an estimate of the number of months in each year when pasture growth could have taken place. This estimate was arrived at by comparing the actual rainfall for each month with the minimum effective rainfall. If the recorded rainfall equalled or exceeded this minimum, one point was allotted. The primary score of points so obtained was modified by further consideration of the actual rainfall recorded. If this greatly exceeded the minimum effective figure, it was assumed to have some carry-over effect, the duration of which was assessed arbitrarily according to the amount received, the rainfall in previous months, the locality, the time of the year and the subsequent rainfall. For every month in which it was estimated the carry-over effect would operate, another point was added. The final score was referred to the standards (Table 7) and the year classified accordingly.

An example of the method is given by considering two years at Blackall, where the monthly requirements for effective rain in inches are :—

Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
2·24	2·02	2·18	2·14	1·82	1·96	1·64	1·25	·86	·91	1·30	1·56

For 1921-22 the monthly recorded totals were :—

Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
·66	1·06	2·70	·49	6·46	1·8	·01	·03	·65	·26	·00	·15

The primary point score awarded for the effective rain in December and February is 2. In September 1921, immediately preceding the year under consideration, rainfall was 4·01 in., considerably more than the minimum requirement for effective rain in that month. This would keep pastures growing during October, so an additional point was credited even though rainfall in October was below the

minimum effective requirement. The heavy fall in February would maintain pastures in good condition at least through March, as temperatures and evaporation are decreasing at this time of the year. One more point was added, giving a total of 4, which grades the year as mediocre (from Table 7).

In 1938-39 the following rainfalls were recorded :—

Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
2·43	·38	·37	13·35	3·89	5·35	7·00	·72	1·80	·00	·00	·00

The primary score is 6. The effect of the heavy falls from January to April would be to keep pastures growing throughout May, and with the June rain would prolong the effect into July. An extra 2 points were thus credited, the final score became 8 and the year was classified as good to fair.

A grid (Fig. 51) was constructed to show the results of this classification. On it years are represented as follows :—

Good to fair	Open square
Mediocre	Square one-third black
Bad	Square two-thirds black
No effective rain	Black square

Stations are arranged from north to south roughly along the 10 in., 15 in., 17·5 in., 20 in., and 25 in. isohyets. From the grid, the sequence, duration and type of drought experienced at various centres were studied.

RESULTS.

Figs 1-49 show graphically the pattern of effective rainfall through the years. They can be used to compare one station with another or to study seasonal fluctuations at particular stations. They present a picture of the sequence of " wet " months and " dry " months and emphasize how failure of rainfall in particular months can completely ruin a whole season. For example, Fig. 16 shows that although Richmond normally receives effective rain in only two or three months of the year and that nine of 10 months are dry, failure of late summer rains, such as occurred in 1923 and 1931, results in prolonged drought. Equally striking is the seasonal disturbance caused by abnormally high winter rains and subnormal summer rains which occur occasionally (e.g., Springsure in 1933. (Fig. 42)).

Tables 1 and 2 present an expression of the normal precipitation pattern. From them it is possible to compare the mean amounts of rainfall actually received with the minimum amounts required for effectiveness and to learn the frequency of occurrence of effective rains. They also allow comparison of the rainfall pattern of one station with those of others.

Table 3 is important in that it is an expression of the frequency of effective rain at the period when pastures are capable of making maximum growth. For this reason, it is roughly an index of the frequency of " normal " seasons. This applies

more particularly in northern areas, but even in the south, rains at this time of the year are highly significant. Late summer rain is necessary for maximum production of forage for grazing animals and also to allow the plants themselves to replenish the food reserves necessary for their own survival. Thus repeated failure of late summer rain not only reduces the amount of forage available to the grazing animals, but also results in reduction in the perennial plant population.

Table 4 takes into consideration more than the mere minimum needed to make rainfall effective. It presents the frequency of actual rainfall amounts in terms which give some indication of relative rainfall intensity. From these tables it is possible to read off the frequency of occurrence of a particular amount of rainfall and also that of all occasions on which this amount or more has been received. Figures in the zero column give an indication of the relative dryness of particular months. Those in the 1-100 column show the frequency of light falls. These can damage dry grass pasture if they occur in winter.

Table 5 is another expression of the growing season. It presents in tabular form much of the information expressed graphically in Figs. 1-49. In this table the sequence of " wet " months is taken into consideration, but not on a continuous basis. It illustrates the increase in length of the growing season with increasing rainfall, emphasizes the brief nature of the growing periods in the area studied, and shows clearly the progressive shortening of the winter growing period towards the north-west. For example, at Cunnamulla 46 out of 58 years had at least one effective month of winter rainfall, 16 had two, 5 had three and 1 had four months; at Camooweal, with approximately the same annual rainfall, in only 18 years was there one month of effective rainfall in winter and there was only one longer period (of two months).

It is realised that the definition of a growing period does not necessarily give an accurate picture of the real growing period. It does not take into consideration the effect of the water stored in the soil following heavy falls of rain. This stored water may extend the growing period beyond the last month of effective rain, and sometimes may sustain pastures for several months afterwards. The amount of water stored and its usefulness depend on amount and intensity of the rain, weather conditions subsequent to falls of rain, time of year, topography, soil type and vegetation. These were not considered in compiling Table 5, but some weight was given to them in preparing Table 7.

In interpreting the figures in Table 6, consideration must be given to the length of the " normal " dry period. The extraordinarily high figures for dry periods beginning in late summer and early autumn are largely explained in this way. Similarly, the large number of droughts which end in early summer is often merely a reflection of the normal precipitation pattern.

Fig. 51 is an attempt to assess the value of each month's rainfall for each station and to take cognizance of the influence of preceding and succeeding conditions on the effectiveness of each month's rainfall. At best it is an approximation, since monthly rainfall figures do not indicate intensity or spacing of individual falls. However, it presents a classification of the seasons experienced in the sheep-raising country since 1866 and facilitates the study of past droughts.

From Fig. 51 it is possible to see the nature of a particular season, and how it is related to other seasons at the same station and at other places. The grid indicates that State-wide droughts occurred in 1902, 1915, 1919, 1935, 1940 and 1946 and that they followed no discernible pattern or cycle. In some periods (e.g., from 1926 to 1928), the central and northern regions suffered from drought and conditions in the south-west were reasonably good, but no progressive shift of drought conditions with time either from north to south or from west to east has been established.

Droughts of a local nature were more frequent but equally erratic in their sequence. As would be expected, regions of lower rainfall were affected by drought more often than those of higher average rainfalls.

Particular attention is directed to sequences of years such as those experienced at Longreach from 1941 to 1948. Both 1941 and 1942 were favourable years but three consecutive mediocre years followed, while 1946 was a bad year, 1947 a mediocre year and 1948 another bad year. The result was a disastrous drought. Such sequences of mediocre and bad years may be found in the records of almost every district.

DISCUSSION.

What Constitutes a Drought?

Climatic drought may develop in different ways. In some circumstances a single bad year or one with no effective rain may lead to mortality of stock and be regarded as a drought. On the other hand, seasonal conditions during previous years may have provided enough pasture to alleviate the effects of a very dry year unless stock numbers are excessive. Thus a single dry year may not have disastrous effects on sheep numbers or on wool production (e.g., in 1912 Roma experienced a bad year but sheep numbers increased and wool production was maintained).

A succession of mediocre years may lead to drought even though no individual year could be classed as bad. Many combinations of mediocre, bad and " rainless " years can also result in drought conditions. An interesting example is afforded by the records for Muckadilla. At that centre the years 1891 and 1895 were good, from 1896 to 1899 they were classified as mediocre, and 1900 was bad. A good year in 1901 was followed by one with no effective rain in 1902. Subsequent seasons were dry, and even though rainfall in 1901 was adequate for growth under normal conditions, the year of no effective rain in 1902 climaxed the series with a drought which caused the heaviest stock losses ever recorded. Similar rainfall patterns are observable at other stations over this period, and the severity of the 1902 drought was due just as much to the succession of mediocre and bad years which preceded it as to the dearth of rainfall in 1902 itself.

In this study, drought is considered as it affects pastures and through them grazing animals. The three major factors—climatic, vegetational and biotic—are so closely integrated that variation in any one affects the others also.

Climatic changes affect both vegetation and grazing animals; changes in vegetation affect microclimate as well as animals; and changes in the numbers and the kinds of animals produce changes in the vegetation.

The actual effects of drought, therefore, vary to some extent with the manner in which the drought develops, even though the end-point may be the same. The consequences of drought may depend upon the way in which the drought develops. Thus droughts which begin with a bad or " rainless " year often result in less economic loss than those which develop gradually through a series of mediocre years. In the first case, sheep numbers are reduced at once, whereas in the second the tendency is to retain all or nearly all the flock in the hope that a good year will follow. Under these conditions the grazing pressure is greater than when stock numbers are reduced early and the effect on the pasture of droughts of this type may be more serious. Once feeding is begun the wool-grower may feel committed to continue, and if he is forced to do so, heavy expense may be incurred.

The Influence of Drought on the Natural Pastures of Semi-arid Pastoral Queensland.

While semi-arid Queensland has always been subject to periodic droughts, the introduction of domesticated animals, restricted to circumscribed areas, brought an important new factor into the ecology of the region. In some cases this biotic factor has been decisive in inducing drought conditions. In these studies no attempt has been made to measure this factor precisely, nor has it been possible to use it in assessing droughts, but it has been considered in devising methods of mitigating the effects of recurrent dry periods. Fire, too, may be an important factor in inducing drought in the economic sense, since it can destroy pasture which, from the rainfall figures, could be expected to be available for grazing.

Maximum production should not be achieved at the cost of pasture depletion but efficient husbandry must preserve existing pastures and should aim at improvement of the natural plant communities if possible. Drought profoundly affects these communities, but good management can do much to reduce its destructive effects.

Over much of the region considered in this paper, the permanent part of the pasture consists of widely spaced perennial plants, mainly tussocky grasses which grow rapidly after summer rains, produce seeds in a few weeks and then remain dormant until the next favourable season. If the winter is dry, grasses in their dormant condition retain their palatability and approximate in food value to cured grass hay.

Rain in summer brings up species other than the perennial grasses and these fill the interstices between the perennial tussocks. They may be either annual plants (including grasses) or plants with perennial roots which produce annual stems. Rain at other periods may bring up other plants, mostly annuals with a short life cycle. The actual species depend upon locality, soil and time of year, as well as the amount of rain received. Variation in one or more of these factors

results in marked differences in floristic composition. The ephemeral plants are important in evaluating droughts, for often they provide forage for grazing animals sufficient to mitigate the effects of subnormal summer rains and to supplement the protein-poor material provided by the dry perennial grasses.

There is a progressive decrease in the variety of ephemeral winter plants from south to north. Probably this is a reflection of the decrease in frequency of winter rains towards the north. Even when winter rains are received in the more northerly areas, species adapted to utilise them are not abundant, and unless the rain is heavy, response may be poor. If the rain is light, harm may result due to frosting and loss of protein from the standing dry grass.

Although the total amount of dry matter produced per unit area is often greater in the northern region than it is in the south, it is of less value to grazing animals because of the shorter growing period. Obviously, in a pasture which makes maximum growth in about six weeks and then dries off, it is not practicable to carry sufficient animals to eat more than a small proportion of the total forage produced. The critical factor for grazing is not the amount of dry matter produced, but the length of the growing season. This in turn depends upon the distribution of the rainfall rather than the total amount received.

In this discussion, drought is considered to be a period when pasture growth is so far below normal that it affects adversely the animals grazing in particular areas. Obviously, it is important to know and to consider the norm for particular districts. The criteria for good, mediocre and bad years were so selected that winter rain in the northern areas, in which the flora is not well adapted to utilise it, is given less weight than the same amount of winter rainfall in the more southerly regions, where native plants respond well to such precipitation. It will be appreciated that any failure of summer rains in the northern areas may lead to drought conditions, whereas in the south, shortage of summer rain may be largely offset by rain at other times of the year.

Variations of the normal precipitation pattern in several successive yeart may produce changes in the dominant plants even though they may not resuls in droughts in the sense that no forage is available for grazing animals.

Blake (1938) introduced the concept of the " fluctuating " climax to describe changes in the dominants in the grasslands of semi-arid Queensland. There seems little doubt that these fluctuations are related directly to changes in amount and distribution of effective rain. Observations on the behaviour of Queensland blue grass (*Dichanthium sericeum*) and Mitchell grasses (species of *Astrebla*) illustrate this. Blue grass is dominant on the black clay soils in the Clermont-Emerald-Springsure areas, which normally receive four months of effective rainfall in the summer. Mitchell grasses are dominant on the grey and brown clays in the region with average annual rainfall below 20 in. (i.e., west of a line from Tambo to Goondiwindi), which normally has two months of effective summer rainfall. In the years 1930-1940, summer rainfall in the Clermont-Emerald-Springsure areas was below average and distribution was abnormal. In much of the country formerly dominated by blue grass, Mitchell grasses became important constituents of the pasture and in

some places assumed local dominance. From 1947 to 1950, summer rains were good and well distributed and blue grass once more became completely dominant. In part of the Dirranbandi and Charleville districts, the abnormally high and evenly distributed rainfall from 1947 to 1950 caused a great increase in the amount of blue grass in the pasture and in some places this species became dominant over the Mitchell grasses.

During the period from 1933 to 1943, rainfall generally over south-western Queensland was somewhat unusual in its distribution in that in many years summer precipitation was below normal and precipitation at other times exceeded the average. One effect was to encourage the spread of galvanized burr (*Bassia birchii*) at the expense of perennial grasses. Few of these years could be classed as bad, yet there was a change in some of the plant communities. Abundant summer rainfall from 1947 to 1950 markedly reduced the incidence of galvanized burr and restored the dominant perennial grasses except where other factors, such as overgrazing, had operated to prevent the re-establishment of the perennial pasture.

The effect of drought on stock may be considerably influenced by the nature of the perennial vegetation. Areas which are predominantly grassland are more readily affected by drought than those in which quantities of edible scrub are available either as windfalls or as material suitable for supplementary feeding. The Cunnamulla district provides a good example of this as it is regarded as a fairly "safe" area despite the fact that according to the rainfall figures the incidence of drought is high. Abundance of edible scrub, chiefly mulga (*Acacia aneura*), combined with areas of open grassland allows sheep to be maintained through many of the minor droughts which do occur. Consequently drought losses are lighter than in open grassland areas such as the Winton district, where there is no natural supplementary feed available to the animals. In addition, the Cunnamulla district has a variety of soils, many of which produce plants capable of quick response to light winter rain which would be totally ineffective or even harmful on the heavy clay soils of the open grassland in the north-west.

The rate at which soil moisture is removed depends mainly on the rate at which it is transpired by plants. This in turn depends on the density of the vegetation, the species composition and the dynamic drying influence of the environment. The drying influence is approximately proportional to the saturation deficit, and figures for saturation deficit have been used in this study. Temperature and solar radiation influence the water-regulating mechanism of plants independently of the drying influence of the environment and effects vary according to the plant species. Density of plant cover varies from place to place and from year to year and at present no quantitative expression of this factor is possible.

The density of plant cover can be modified to some extent by grazing, mowing and burning. In seasons with very wet summer months the soil is soaked to a considerable depth, and a very luxuriant growth of grasses and other plants results. The increase in plant density brings about increased transpiration and therefore an increased rate of removal of soil moisture. Some of the moisture in the subsoil can be conserved by reducing the density of the plant cover, either by grazing or

by mowing. In extreme cases, burning may also be used, but the deleterious effects of fire may be serious enough to offset its advantages. Whatever means are employed to reduce the density of plant cover, the effect is to decrease the rate of removal of water from the soil and thus allow the pasture to remain in good condition for a longer period. If the removal of leaf is too drastic, the plants may die due to exhaustion of their food reserves, so in applying this practice judgment based on appreciation of the principles involved is needed.

Sheep Husbandry in Queensland in Relation to Drought.

Under pastoral conditions the fodder likely to be available to grazing animals depends upon the nature of the vegetation, the condition of the pasture and the grazing pressure, both present and anticipated. The first two factors depend largely upon climatic conditions but grazing pressure can be modified.

From the data presented it is possible to see the normal climatic pattern for any district and to assess its drought risk compared with other districts. This information, combined with a knowledge of the nature of the pastures, can help in devising methods of animal husbandry which will minimise the effects of drought.

A knowledge of the normal climatic pattern can assist in determining when to relieve grazing pressure. Other factors, such as the availability of agistment and transport, the state of the wool market and the price of sheep, may at times override climatic considerations, but climate is the most important single variable factor to be considered. If summer rains fail, pasture growth will be below normal and a decision must be made whether to remove stock or begin feeding. Tables 1, 2 and 3 and Figs. 1-49 can be of assistance in making this decision. For example, they show that at centres in the north-west the incidence of rain from April to November is low and therefore sheep numbers should be reduced immediately summer rains fail, both to relieve the pressure on the pasture and to allow enough forage for maintenance of the remaining animals. Top-feed such as edible trees and shrubs is scarce in these districts and sheep depend almost entirely on grasses and herbage plants for sustenance.

In the south-west, on the other hand, the incidence of winter rain is comparatively high. If summer rains fail there are still about six chances in 10 that effective rain will fall in June and make it possible to carry the sheep through till then or to reduce numbers less drastically. In addition, the south-western areas are well provided with top-feed which can be utilised if the pastures fail.

In some seasons natural pasture may be so depleted that it becomes necessary to hand-feed sheep. The same principles are applied in considering the practicability or otherwise of hand-feeding. For example, if at Richmond the summer rains failed and the pastures could not support the stock, hand-feeding should not be contemplated unless the wool-grower is prepared to continue feeding until at least November and possibly until February. At Charleville, on the other hand, there are approximately six chances in 10 that feeding could be discontinued in June. If, however, there is no relief rain by the end of July it is most likely that feeding would have to be continued at least until December.

Table 8 shows that drought losses in the north-west have been higher than those in the southern part of the State. This is due to the higher incidence of drought, aggravated by the absence of top-feed.

The re-building of flocks depleted by drought is one of the greatest problems facing wool-growers in the north-west. With existing methods of transport it is difficult to move sheep into or out of that area. The majority of sheep born in the north ultimately die in the paddocks and their replacement from southern flocks is seldom practicable because of the higher market value in the south and the difficulties of transportation. Therefore, replacement must come, in the main, from natural increase.

Reproductive rates in the north are low, partly because of high temperatures and partly because of pasture deficiencies directly related to the poor distribution and unreliable nature of the rainfall. The influence of seasonal conditions on reproductive rates is also reflected in changes in the composition of flocks and in the husbandry practices which are being followed. Table 9 presents a summary of the ratio of ewes mated to the total flock in the pastoral districts for the 19 years from 1918 to 1936.

Because of the difficulty of maintaining flock numbers in the northern districts, it has been the practice to carry a higher proportion of ewes than in more favoured districts such as the Maranoa. This is a practice born of necessity, but its wisdom is doubtful. In districts which experience severe droughts a high proportion of wethers to breeding ewes should be carried. This would allow the wether section of the flock to be used as a " safety valve." The wethers could be disposed of early, so relieving pressure on the pasture and giving the ewes a better chance to survive when seasonal conditions are adverse.

In practice, however, the maintenance of a large proportion of wethers is often difficult in districts where reproductive rates are low. Gunn, Granger and Sanders (1942) have shown that rams subjected to long periods of vitamin-A deficiency are likely to become infertile, and the fertility of rams has a considerable influence on reproductive rates. The annual occurrence of a prolonged dry period in the north-west with concomitant shortage of vitamin-A in the pasture means that even under normal conditions natural increases are small. This, combined with occasional failure of summer rains, makes it extremely difficult to maintain sheep numbers at all, and a surplus is seldom available for culling.

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Table 1.

FREQUENCY OF MONTHLY EFFECTIVE RAINFALL.

M = Mean monthly rainfall in points.

E = Minimum monthly requirement for effective rainfall in points (100 points = 1 inch).

F = Number of years from 1894 to 1951 in which effective rainfall was recorded.

Station.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
Urandangie ..	M	75	33	230	164	313	160	44	29	26	25	55	77
	E	312	288	301	285	246	280	248	211	154	158	211	232
	F	1	2	12	13	29	11	2	3	8	6	1	1
Boulia ..	M	49	95	122	163	193	147	56	43	54	32	20	31
	E	292	269	285	278	253	276	224	182	125	125	173	212
	F	3	8	9	11	21	13	6	4	8	7	1	1
Windorah ..	M	74	48	89	167	265	68	43	30	40	52	35	44
	E	256	246	269	282	259	268	196	149	101	101	154	188
	F	6	7	9	9	18	12	7	7	18	11	2	6
South	M	63	73	133	282	149	101	53	72	58	45	75	34
Comongin	E	220	228	248	264	244	240	170	129	84	90	129	160
	F	8	7	9	9	19	10	9	9	25	15	8	8
Thargomindah	M	45	58	111	138	191	74	66	67	63	38	63	38
	E	228	230	256	275	250	256	172	130	86	82	130	164
	F	4	5	10	7	10	7	6	10	21	11	6	8
Eulo	M	76	98	132	127	151	127	78	80	117	83	68	61
	E	210	210	222	246	214	220	160	144	78	72	117	150
	F	5	10	11	9	18	11	10	11	29	19	8	11
Camooweal ..	M	53	124	208	361	343	199	41	31	61	28	14	21
	E	300	256	250	224	182	240	236	211	154	168	211	236
	F	2	7	24	31	44	21	2	2	10	4	0	1
Kynuna ..	M	63	124	237	332	309	191	62	54	79	46	15	31
	E	256	227	234	202	173	212	196	168	115	115	168	188
	F	1	10	17	34	39	17	6	6	13	10	2	2
Winton ..	M	77	129	184	315	311	209	67	62	83	64	22	41
	E	268	243	250	230	196	224	200	173	125	125	173	204
	F	4	9	13	28	36	21	6	11	12	15	1	3
Longreach ..	M	97	115	181	212	338	239	95	85	87	80	28	57
	E	236	205	221	208	176	196	148	149	96	106	144	172
	F	8	13	21	23	30	20	15	11	18	17	4	5
Jundah ..	M	83	55	108	150	288	88	49	52	49	53	37	56
	E	250	236	254	248	230	140	190	150	99	105	153	180
	F	8	6	8	16	25	22	7	11	15	14	2	7

FREQUENCY OF MONTHLY EFFECTIVE RAINFALL.

Station.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
Adavale ..	M	102	125	178	229	201	181	96	104	124	93	52	64
	E	224	224	240	250	234	232	164	130	82	91	130	160
	F	8	11	19	15	22	19	12	13	29	19	4	12
Cunnamulla ..	M	88	105	153	131	208	138	106	115	118	88	70	82
	E	196	198	208	224	192	200	144	110	72	67	110	140
	F	4	14	15	11	24	14	12	17	34	25	8	11
Cloncurry ..	M	45	128	279	442	411	233	70	45	62	34	15	29
	E	308	259	256	234	208	248	248	226	173	168	225	244
	F	2	11	20	37	40	22	6	4	7	5	2	1
Richmond ..	M	61	131	252	444	387	217	77	57	74	42	11	24
	E	284	243	237	198	170	212	204	178	134	149	197	220
	F	3	12	29	39	44	24	10	7	10	6	0	1
Hughenden ..	M	86	126	263	454	366	212	105	60	88	48	30	41
	E	256	224	214	170	150	176	168	158	110	120	168	184
	F	6	13	24	42	46	26	10	7	13	12	3	5
Aramac ..	M	103	118	225	271	315	204	113	65	112	66	64	58
	E	220	192	200	196	162	180	160	138	99	102	141	160
	F	9	16	22	29	31	23	13	14	20	16	6	11
Isisford ..	M	103	133	189	240	278	263	134	99	109	92	54	63
	E	224	208	205	211	179	204	164	139	101	106	144	160
	F	11	14	17	21	32	21	14	11	18	18	3	8
Bollon ..	M	129	148	214	226	196	176	112	120	146	106	94	102
	E	180	176	191	205	180	180	126	103	65	59	92	122
	F	14	22	29	26	21	16	23	19	38	35	22	18
Dirranbandi ..	M	120	161	217	226	196	188	124	134	157	111	86	102
	E	182	174	190	214	192	192	132	102	92	63	99	128
	F	13	22	28	21	23	22	16	22	36	34	17	22
Barcaldine ..	M	140	134	224	322	280	258	142	115	114	100	55	68
	E	224	192	198	196	163	196	156	139	96	101	139	164
	F	13	14	26	33	29	21	16	17	26	20	7	9
Alpha ..	M	125	175	264	364	302	236	139	102	151	102	74	88
	E	200	184	184	170	148	180	150	132	93	93	132	150
	F	14	26	29	44	35	24	17	14	31	17	14	15
Blackall ..	M	139	151	241	285	320	267	134	136	125	112	66	77
	E	224	202	218	214	182	196	164	125	86	91	130	156
	F	14	17	25	28	33	27	16	17	28	22	11	10
Tambo ..	M	135	181	251	283	297	260	139	135	129	120	74	86
	E	188	173	186	179	150	168	140	110	72	77	110	144
	F	17	24	32	40	39	30	17	18	36	26	12	14

FREQUENCY OF MONTHLY EFFECTIVE RAINFALL.

Station.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
Augathella ..	M	141	187	258	299	280	292	142	119	158	124	77	96
	E	190	180	200	192	170	180	140	108	69	72	114	140
	F	14	22	33	33	21	27	19	24	33	32	15	13
Charleville ..	M	125	164	236	247	264	227	135	122	135	123	77	84
	E	196	189	205	208	186	192	148	110	67	72	115	140
	F	12	20	30	25	27	22	16	18	33	26	17	14
Morven ..	M	82	197	249	411	224	201	91	97	98	99	119	202
	E	180	176	192	190	170	180	130	102	63	66	105	130
	F	16	25	33	30	28	29	19	24	39	29	20	18
Muckadilla ..	M	99	206	211	355	409	205	75	78	100	98	102	105
	E	185	178	166	186	166	168	128	102	63	60	102	130
	F	17	25	38	31	32	28	18	20	34	35	19	13
Mitchell ..	M	145	219	274	294	298	277	136	126	163	145	94	122
	E	189	180	191	191	169	166	122	97	59	65	103	130
	F	21	32	36	29	30	36	22	25	42	37	19	14
Roma ..	M	173	216	250	311	283	268	128	143	153	145	89	138
	E	184	176	184	184	166	175	135	103	65	65	103	126
	F	25	29	34	35	32	32	20	24	38	35	19	18
Surat	M	174	182	269	273	291	257	122	127	175	173	101	123
	E	158	151	169	173	155	158	126	103	65	59	92	117
	F	25	25	40	38	33	31	20	24	40	40	23	23
St. George ..	M	131	176	204	259	231	216	133	144	153	125	95	106
	E	180	173	184	220	180	180	162	113	70	65	103	122
	F	17	24	28	28	25	27	13	21	36	30	18	21
Clermont ..	M	133	207	374	505	415	306	158	129	168	107	68	97
	E	215	196	192	172	140	170	150	138	96	96	132	160
	F	15	28	34	47	38	33	23	16	32	21	8	12
Emerald ..	M	146	208	333	418	326	289	139	107	167	113	86	112
	E	210	184	184	172	152	170	150	144	102	102	132	160
	F	14	33	38	44	39	31	18	12	32	19	13	15
Springsure ..	M	165	232	320	420	375	294	152	123	175	121	101	126
	E	205	184	180	172	156	185	165	162	114	120	150	165
	F	22	33	39	46	42	29	18	13	31	19	14	15
Taroom ..	M	182	307	321	407	310	270	150	165	171	145	111	138
	E	174	155	158	156	124	156	120	104	70	75	155	174
	F	30	44	46	45	43	35	25	25	38	28	14	21
Yuleba ..	M	240	256	299	363	278	203	134	145	210	105	72	238
	E	171	151	155	155	140	158	117	103	65	70	92	126
	F	28	35	44	45	39	35	26	26	42	34	21	24

FREQUENCY OF MONTHLY EFFECTIVE RAINFALL.

Station.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
Miles	M	203	263	306	368	260	270	148	151	174	164	113	131
	E	162	148	155	151	130	144	112	97	65	70	97	122
	F	34	40	43	46	42	37	27	29	43	37	23	23
Dalby ..	M	152	383	428	420	301	273	114	120	141	127	92	129
	E	187	176	176	172	159	176	143	112	79	79	119	143
	F	27	42	43	46	35	35	24	24	40	41	22	26
Goondiwindi ..	M	175	225	291	297	249	252	147	171	177	174	125	151
	E	158	155	176	169	151	162	117	92	59	59	86	112
	F	28	34	39	40	32	29	25	34	44	45	30	32
Pittsworth ..	M	209	278	420	430	284	268	84	151	195	129	97	159
	E	160	145	141	141	132	154	132	112	79	79	106	121
	F	41	42	50	50	40	34	22	31	45	43	21	34
Warwick ..	M	213	273	457	450	317	307	126	220	177	106	134	153
	E	149	132	150	141	128	143	105	62	59	59	86	104
	F	41	48	48	50	43	35	28	39	46	46	34	40

Table 2.

FREQUENCY OF MONTHLY EFFECTIVE RAINFALL.

M = Mean monthly rainfall in points.

E = Minimum monthly requirement for effective rainfall in points (100 points = 1 inch).

F = Number of years in which effective rainfall was recorded.

Station and years on record.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
Wyandra ..	M	70	95	174	270	198	113	78	112	79	79	87	73
(1899–1951)	E	190	194	212	222	194	200	150	114	69	72	114	140
	F	9	10	20	14	21	14	14	16	36	25	10	15
Listowel Downs	M	95	104	184	297	258	167	90	113	57	117	101	39
(1898–1951)	E	210	206	220	220	200	200	160	120	84	87	126	160
	F	11	16	23	20	26	21	16	16	23	21	13	10
Boatman ..	M	71	98	218	272	252	173	69	110	74	84	107	77
(1910–1951)	E	180	180	198	204	176	180	140	108	63	66	108	130
	F	8	13	20	20	22	14	11	16	25	20	12	13
Thallon ..	M	96	178	180	251	175	221	50	87	99	90	111	96
(1914–1951)	E	178	168	184	202	180	185	128	99	72	60	96	125
	F	8	18	22	18	16	12	10	17	25	21	11	13
Torrens Creek	M	88	124	284	513	344	226	111	61	107	60	36	62
(1897–1951)	E	240	210	200	166	140	170	160	162	114	120	165	170
	F	6	13	31	38	42	24	14	7	21	9	2	6
Jericho ..	M	117	188	248	286	342	170	128	74	138	72	90	71
(1905–1951)	E	210	190	190	180	154	180	150	135	96	96	135	160
	F	12	19	26	30	25	19	13	8	27	15	8	9
Talwood ..	M	144	192	219	272	255	252	90	143	137	89	110	114
(1914–1951)	E	168	164	180	192	168	178	120	96	66	60	90	118
	F	15	21	20	22	18	18	14	17	30	24	15	15

Table 3.

FREQUENCY OF AT LEAST TWO MONTHS OF EFFECTIVE RAINFALL IN LATE SUMMER (JANUARY, FEBRUARY, MARCH).

Station.	F*	Station.	F*	Station.	F*
Urandangie ..	16	Isisford	25	Springsure	45
Boulia	11	Bollon	17	Taroom	47
Windorah	9	Dirranbandi	22	Yuleba	44
South Comongin ..	8	Barcaldine	26	Miles	50
Thargomindah ..	6	Alpha	37	Dalby	43
Eulo	8	Blackall	33	Goondiwindi ..	36
Camooweal ..	29	Tambo	40	Pittsworth	47
Kynuna	28	Augathella	31	Warwick	49
Winton	27	Charleville	21	†Wyandra	12/53
Longreach	22	Morven	29	†Listowel Downs ..	23/54
Jundah	22	Muckadilla	34	†Boatman	15/42
Adavale	15	Mitchell	30	†Thallon	15/38
Cunnamulla ..	12	Roma	34	†Torrens Creek ..	36/55
Cloncurry	39	Surat	36	†Jericho	24/47
Richmond	40	St. George	27	†Talwood	22/38
Hughenden ..	40	Clermont	42		
Aramac	29	Emerald	40		

* Figures in column F represent frequency in the period of 55 years except those marked †, where the numerator is the frequency and the denominator the total number of years of record.

Table 4.

FREQUENCY DISTRIBUTION OF MONTHLY RAINFALL, 1894–1951.

E = Mean monthly requirement for effective rainfall in points.

F = Frequency.

AT = Accumulated total.

* Denotes that the intervening rainfall class or classes are not represented.

URANDANGIE (1395)†.

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	312	288	301	285	246	280	248	211	154	158	211	232
0 ..	F	17	7	3	1	4	14	28	35	22	35	42	27
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	29	35	31	18	15	22	22	14	27	16	12	28
	AT	41	51	55	57	54	44	30	23	36	23	16	31
101–200 ..	F	10	7	11	17	9	7	6	6	5	4	3	2
	AT	12	16	24	39	39	22	8	9	9	7	4	3
201–300 ..	F	1	7	2	12	10	6	1	2	4	3	1	0
	AT	2	9	13	22	30	15	2	3	..	..	..	1
301–400 ..	F	1	2	3	3	9	0	0	0	..	..	..	1
	AT	..	..	11	10	20	9	1	1	..	..	..	..
401–500 ..	F	..	..	1	1	1	2	0	1	..	..	..	..
	AT	..	..	8	7	11	9	1	..	..	..	..	..
501–600 ..	F	..	..	2	2	7	1	1	..	..	..	..	..
	AT	..	..	7	6	10	7	..	..	..	..	..	..
601–700 ..	F	..	..	4	3	1	2	..	..	..	..	..	..
	AT	..	..	5	4	3	6	..	..	..	..	..	..
701–800 ..	F	..	..	0	0	0	1	..	..	..	..	..	..
	AT	..	..	1	1	2	4	..	..	..	..	..	..
801–900 ..	F	..	..	0	0	1	0	..	..	..	..	..	..
	AT	..	..	1	1	2	3	..	..	..	..	..	..
901–1000 ..	F	..	..	0	0	1	1	..	..	..	..	..	..
	AT	..	..	1	1	..	3	..	..	..	..	..	..
1001–1100 ..	F	..	..	1	1	..	0	..	..	..	..	..	..
	AT	..	..	..	..	..	2	..	..	..	..	..	..
*													
1201–1300 ..	F	..	..	..	..	..	1	..	..	..	..	..	..
	AT	..	..	..	..	..	2	..	..	..	..	..	..
*													
1401–1500 ..	..	..	..	..	..	..	1	..	..	..	..	..	..

† The figure after each station represents the mean annual rainfall in points (100 points = 1 inch).

BOULIA (1124).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	292	269	285	278	253	276	224	182	125	125	173	212
0 ..	F	13	10	7	3	8	15	30	31	21	30	36	24
	AT	58	58	58	57	57	57	57	57	58	58	58	58
1–100 ..	F	34	31	30	26	15	20	20	20	27	20	20	29
	AT	45	48	51	54	49	42	27	26	37	28	22	34
101–200 ..	F	6	9	10	14	12	5	1	3	8	5	1	4
	AT	11	17	21	28	34	22	7	6	10	8	2	5
201–300 ..	F	3	2	2	4	6	9	3	1	1	3	0	1
	AT	5	8	11	14	22	17	6	3	2	..	1	..
301–400 ..	F	2	2	3	4	6	3	1	2	0	..	1	..
	AT	..	6	9	10	16	8	3	..	1	..	..	..
401–500 ..	F	..	3	3	2	4	2	1	..	1	..	..	..
	AT	..	4	6	6	10	5	2	..	..	..	..	..
501–600 ..	F	..	1	1	2	2	0	0	..	..	..	..	..
	AT	..	..	3	4	6	3	1	..	..	..	..	..
601–700 ..	F	..	..	0	0	0	0	1	..	..	..	..	..
	AT	..	..	2	2	4	3	..	..	..	..	..	..
701–800 ..	F	..	..	1	0	2	0	..	..	..	..	..	..
	AT	..	..	2	2	4	3	..	..		..	..	..
801–900 ..	F	..	..	1	2	1	0	..	..	..	..	..	..
	AT	..	..	..	..	2	3	..	..	..	..	..	..
901–1000 ..	F	..	..	..	..	1	1	..	..	..	..	..	..
	AT	..	..	..	..	..	3	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	..	..	0	..	..	..	..	..	..
	AT	..	..	..	..	..	2	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	..	..	0	..	..	..	..	..	..
	AT	..	..	..	..	..	2	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	..	..	1	..	..	..	..	..	..
	AT	..	..	..	..	..	2	..	..	..	..	..	..
1301–1400 ..	..	..	..	..	..	..	1	..	..	..	..	..	..

There are no records for January to April, 1895, and May 1946.

WINDORAH (1240).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	256	246	269	282	259	268	196	149	101	101	154	188
0 ..	F	8	7	1	3	4	9	18	16	8	15	19	18
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	36	35	31	32	26	26	26	32	34	32	36	28
	AT	50	51	57	55	54	49	40	42	50	43	39	40
101–200 ..	F	7	9	14	8	9	8	9	5	10	8	1	8
	AT	14	16	26	23	28	23	14	10	16	11	3	12
201–300 ..	F	5	4	4	8	7	6	3	4	5	2	1	3
	AT	7	7	12	15	19	15	5	5	6	3	2	4
301–400 ..	F	1	2	1	5	6	4	1	1	1	0	0	1
	AT	2	3	8	7	12	9	2	..	..	1	1	..
401–500 ..	F	0	1	4	0	2	2	1	..	..	0	1	..
	AT	1	..	7	2	6	5	..	..	..	1	..	..
501–600 ..	F	1	..	2	1	1	1	..	..	..	1	..	..
	AT	..	..	3	2	4	3	..	..	..	..	..	..
601–700 ..	F	..	..	0	0	1	0	..	..	..	..	..	..
	AT	..	..	1	1	3	2	..	..	..	..	..	..
701–800 ..	F	..	..	1	0	1	0	..	..	..	..	..	..
	AT	..	..	..	1	2	2	..	..	..	..	..	..
801–900 ..	F	..	..	..	1	0	1	..	..	..	..	..	..
	AT	..	..	..	..	1	2	..	..	..	..	..	..
*													
1101–1200 ..	F	..	..	..	..	1	0	..	..	..	..	..	..
	AT	..	..	..	..	..	1	..	..	..	..	..	..
*													
1901–2000 ..	..	..	..	..	..	..	1	..	..	..	..	..	..

SOUTH COMONGIN (1317).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	220	228	248	264	244	240	170	129	84	90	129	160
0 ..	F	16	9	11	6	10	13	19	17	7	18	22	24
	AT	58	58	58	58	58	58	58	58	57	57	57	57
1–100 ..	F	26	27	20	33	14	20	22	30	31	26	25	20
	AT	42	49	47	52	48	45	39	41	50	39	35	33
101–200 ..	F	8	12	15	7	13	11	9	9	12	8	8	7
	AT	16	22	27	19	34	25	17	11	19	13	10	13
201–300 ..	F	3	5	6	6	7	5	3	0	5	2	1	5
	AT	8	10	12	12	21	14	8	2	7	5	2	6
301–400 ..	F	4	5	4	4	9	1	2	2	1	1	0	1
	AT	5	..	6	6	14	9	5	..	2	3	1	.
401–500 ..	F	1	..	1	0	1	3	2	..	0	1	1	..
	AT	..	..	2	2	5	8	3	..	1	2	..	..
501–600 ..	F	..	..	0	0	1	1	0	..	1	0	..	..
	AT	..	..	1	2	4	5	1	..	..	1	..	..
601–700 ..	F	..	..	1	1	2	2	0	..	..	1	..	..
	AT	..	..	..	2	3	4	1	..	..	..	..	..
701–800 ..	F	..	..	..	0	0	1	1	..	..	..	..	..
	AT	..	..	..	1	1	2	..	..	..	..	..	..
801–900 ..	F	..	..	..	0	1	..	..	..	..	..	..	..
	AT	..	..	..	1	..	..	..	..	..	..	..	..
*													
1001–1100 ..	..	..	..	..	..	..	1	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

There are no records for June to September, 1951.

THARGOMINDAH (1163).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	228	230	256	275	250	256	172	130	86	82	130	164
0 ..	F	9	9	7	4	13	12	18	14	5	11	14	13
	AT	58	57	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	36	29	27	34	19	27	25	34	35	40	37	34
	AT	49	48	51	54	45	46	40	44	53	47	44	45
101–200 ..	F	7	12	11	10	12	11	9	6	13	5	3	7
	AT	13	19	24	20	26	19	15	10	18	7	7	11
201–300 ..	F	3	3	6	4	7	3	2	4	3	1	3	4
	AT	6	7	13	10	14	8	6	..	5	2	4	..
301–400 ..	F	2	2	4	1	1	3	2	..	1	0	1	..
	AT	3	4	7	6	7	5	4	..	2	1	..	..
401–500 ..	F	1	0	2	3	3	0	2	..	1	1	..	..
	AT	..	2	3	5	6	2	..	..	..	..	..	..
501–600 ..	F	..	1	0	2	1	1	..	..	..	..	..	..
	AT	..	2	1	..	3	2	..	..	..	..	..	..
601–700 ..	F	..	1	1	..	2	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..
*													
1501–1600 ..	..	..	..	..	..	..	1	..	..	..	..	..	..

There is no record for November, 1945.

EULO (1381).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	210	210	222	246	214	220	160	144	78	72	117	150
0 ..	F	6	7	5	4	10	11	11	14	4	10	15	13
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	38	33	28	34	16	24	33	29	28	34	33	32
	AT	52	51	53	54	48	47	47	44	54	48	43	45
101–200 ..	F	9	8	13	9	13	12	9	10	16	9	7	7
	AT	14	18	25	20	32	23	14	15	26	14	10	13
201–300 ..	F	3	5	5	3	9	3	3	3	8	2	2	5
	AT	5	10	12	11	19	11	5	5	10	5	3	6
301–400 ..	F	0	3	4	6	4	4	0	2	1	1	0	1
	AT	2	5	7	8	10	8	2	..	2	3	1	..
401–500 ..	F	2	1	2	1	3	1	2	..	0	1	1	..
	AT	..	2	3	2	6	4	..	..	1	2	..	..
501–600 ..	F	..	1	0	0	2	0	..	..	1	1	..	..
	AT	..	..	1	1	3	3	..	..	..	..	..	..
601–700 ..	F	..	..	0	1	0	0	..	..	..	..	..	..
	AT	..	..	1	..	1	3	..	..	..	..	..	..
701–800 ..	F	..	..	1	..	0	1	..	..	..	..	..	..
	AT	..	..	..	..	1	3	..	..	..	..	..	..
801–900 ..	F	..	..	..	..	1	1	..	..	..	..	..	..
	AT	..	..	..	..	..	2	..	..	..	..	..	..
901–1000 ..	..	..	..	..	..	..	1	..	..	..	..	..	..

CAMOOWEAL (1602).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	300	256	250	224	182	240	236	211	154	168	211	236
0 ..	F	14	2	3	1	1	5	22	31	24	41	49	28
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	37	32	16	7	10	23	27	21	20	12	7	25
	AT	44	56	55	57	57	53	36	27	34	17	9	30
101–200 ..	F	5	12	12	18	5	8	5	4	9	3	2	4
	AT	7	24	39	50	47	30	9	6	14	5	..	5
201–300 ..	F	0	7	10	5	14	8	3	1	2	0	..	0
	AT	2	12	27	32	42	22	4	2	5	2	..	1
301–400 ..	F	0	0	5	9	4	4	1	1	1	2	..	1
	AT	2	5	17	27	28	14	..	..	3	..	..	..
401–500 ..	F	2	1	5	3	8	5	..	..	2	..	..	..
	AT	..	5	12	18	24	10	..	..	..	..	..	..
501–600 ..	F	..	4	3	7	5	0	..	..	..	..	..	..
	AT	..	..	7	15	16	5	..	..	..	..	..	..
601–700 ..	F	..	..	2	1	3	1	..	..	..	..	..	..
	AT	..	..	4	8	11	5	..	..	..	..	..	..
701–800 ..	F	..	..	1	2	5	0	..	..	..	..	..	..
	AT	..	..	2	7	8	4	..	..	..	..	..	..
801–900 ..	F	..	..	1	1	1	1	..	..	..	..	..	..
	AT	..	..	..	5	3	4	..	..	..	..	..	..
901–1000 ..	F	..	..	..	1	1	2	..	..	..	..	..	..
	AT	..	..	..	4	2	3	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	1	1	0	..	..	..	..	..	..
	AT	..	..	..	3	..	1	..	..	..	..	..	..
*													
1201–1300 ..	F	..	..	..	0	..	1	..	..	..	..	..	..
	AT	..	..	..	2	..	..	..	..	..	..	..	..
1301–1400 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	2	..	..	..	..	..	..	..	..
*													
1601–1700 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

KYNUNA (1769).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	256	227	234	202	173	212	196	168	115	115	168	188
0 ..	F	19	8	2	2	4	5	25	31	18	32	37	25
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	21	29	9	11	11	26	21	16	25	16	19	28
	AT	39	50	56	56	54	53	33	27	40	26	21	33
101–200 ..	F	14	10	27	11	8	10	7	6	9	5	1	3
	AT	18	21	47	45	43	27	12	11	15	10	2	5
201–300 ..	F	3	4	10	12	8	2	5	3	2	5	1	1
	AT	4	11	20	34	35	17	..	5	6	..	..	2
301–400 ..	F	0	3	3	6	5	5	..	1	2	..	..	1
	AT	1	7	10	22	27	15	..	2	4	..	..	..
401–500 ..	F	0	2	0	4	8	2	..	1	1	..	..	..
	AT	1	4	7	16	22	10	..	..	2	..	..	..
501–600 ..	F	1	1	2	0	5	2	..	..	0	..	..	..
	AT	..	2	7	12	14	8	..	..	1	..	..	..
601–700 ..	F	..	1	3	4	3	2	..	..	1	..	..	..
	AT	..	..	5	12	9	6	..	..	..	..	..	..
701–800 ..	F	..	..	0	2	0	0	..	..	..	..	..	..
	AT	..	..	2	8	6	4	..	..	..	..	..	..
801–900 ..	F	..	..	0	1	0	0	..	..	..	..	..	..
	AT	..	..	2	6	6	4	..	..	..	..	..	..
901–1000 ..	F	..	..	0	1	2	1	..	..	..	..	..	..
	AT	..	..	2	5	6	4	..	..	..	..	..	..
1001–1100 ..	F	..	..	0	2	1	1	..	..	..	..	..	..
	AT	..	..	2	4	4	3	..	..	..	..	..	..
1101–1200 ..	F	..	..	1	1	0	2	..	..	..	..	..	..
	AT	..	..	2	2	3	..	..	..	..	..	..	..
1201–1300 ..	F	..	..	1	0	2	..	..	..	..	..	..	..
	AT	..	..	..	1	3	..	..	..	..	..	..	..
1301–1400 ..	F	..	..	..	1	0	..	..	..	..	..	..	..
	AT					1							
*													
1801–1900 ..	F	..	..	..	..	1	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

WINTON (1756).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	268	243	250	230	196	224	200	173	125	125	173	204
0 ..	F	13	8	2	1	2	5	17	21	12	30	30	20
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	32	25	17	13	14	29	27	24	30	13	26	29
	AT	45	50	56	57	56	53	41	37	46	28	28	38
101–200 ..	F	9	16	19	13	7	3	9	6	8	8	2	6
	AT	13	25	39	44	42	24	14	13	16	15	..	9
201–300 ..	F	0	1	11	10	10	7	3	6	6	3	..	3
	AT	4	9	20	31	35	21	5	7	8	7	..	..
301–400 ..	F	0	5	4	5	4	3	1	1	0	2	..	..
	AT	4	8	9	21	25	14	2	..	2	4	..	..
401–500 ..	F	1	3	1	5	4	3	1	..	0	2	..	..
	AT	4	..	5	16	21	11	..	..	2	..	..	..
501–600 ..	F	2	..	2	4	5	1	..	..	0	..	..	..
	AT	3	..	4	11	17	8	..	..	2	..	..	..
601–700 ..	F	1	..	1	1	5	1	..	..	2	..	..	..
	AT	..	..	2	7	12	7	..	..	..	..	..	..
701–800 ..	F	..	..	1	0	0	1	..	..	..	..	..	..
	AT	..	..	..	6	7	6	..	..	..	..	..	..
801–900 ..	F	..	..	..	4	2	1	..	..	..	..	..	..
	AT	..	..	..	6	7	5	..	..	..	..	..	..
901–1000 ..	F	..	..	..	1	2	4	..	..	..	..	..	..
	AT	..	..	..	2	5	..	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	0	1	..	..	..	..	..	..	..
	AT	..	..	..	1	3	..	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	0	1	..	..	..	..	..	..	..
	AT	..	..	..	1	2	..	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	0	1	..	..	..	..	..	..	..
	AT	..	..	..	1	..	..	..	..	..	..	..	..
*													
1401–1500 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

LONGREACH (1873).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	236	205	221	208	176	196	148	149	96	106	144	172
0 ..	F	10	6	2	2	0	6	19	17	13	24	27	20
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	29	31	19	14	20	20	19	28	29	17	26	26
	AT	48	52	56	56	58	52	39	41	45	34	31	38
101–200 ..	F	10	8	15	19	13	13	9	4	10	9	4	8
	AT	19	21	37	42	38	32	20	13	16	17	5	12
201–300 ..	F	4	7	7	7	3	2	7	5	1	3	1	2
	AT	9	13	22	23	25	19	11	9	6	8	..	4
301–400 ..	F	1	2	8	5	5	4	3	3	3	3	..	0
	AT	5	6	15	16	22	17	4	4	5	5	..	2
401–500 ..	F	3	0	3	5	4	2	0	0	2	2	..	2
	AT	4	4	7	11	17	13	1	1	..	..	..	..
501–600 ..	F	1	2	3	2	1	2	0	1	..	..	..	..
	AT	..	4	4	6	13	11	1	..	..	..	..	..
601–700 ..	F	..	2	0	1	1	3	0	..	..	..	..	..
	AT	..	..	1	4	12	9	1	..	..	..	..	..
701–800 ..	F	..	..	0	0	3	2	1	..	..	..	..	..
	AT	..	..	1	3	11	6	..	..	..	..	..	..
801–900 ..	F	..	..	0	0	1	1	..	..	..	..	..	..
	AT	..	..	1	3	8	4	..	..	..	..	..	..
901–1000 ..	F	..	..	1	0	1	0	..	..	..	..	..	..
	AT	..	..	..	3	7	3	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	1	0	0	..	..	..	..	..	..
	AT	..	..	..	3	6	3	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	0	1	0	..	..	..	..	..	..
	AT	..	..	..	2	6	3	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	1	0	3	..	..	..	..	..	..
	AT	..	..	..	2	5	..	..	..	..	..	..	..
1301–1400 ..	F	..	..	..	1	1	..	..	..	..	..	..	..
	AT	..	..	..	..	5	..	..	..	..	..	..	..
1401–1500 ..	F	..	..	..	..	2	..	..	..	..	..	..	..
	AT	..	..	..	..	4	..	..	..	..	..	..	..
1501–1600 ..	F	..	..	..	..	2	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

JUNDAH (1283).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	250	236	254	248	230	140	190	150	99	105	153	180
0 ..	F	9	9	5	7	6	10	19	22	12	21	26	17
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	33	30	29	27	21	23	22	21	32	23	28	28
	AT	49	49	53	51	52	48	39	36	46	37	32	41
101–200 ..	F	5	12	10	7	6	10	11	7	6	8	2	8
	AT	16	19	24	24	31	25	17	15	14	14	4	13
201–300 ..	F	4	3	9	4	7	4	2	7	2	3	2	1
	AT	11	7	14	17	25	15	6	8	8	6	..	5
301–400 ..	F	3	3	1	7	5	3	2	0	3	2	..	3
	AT	7	4	5	13	18	11	4	1	4	3	..	4
401–500 ..	F	3	1	1	3	5	3	2	0	1	1	..	0
	AT	4	..	4	6	13	8	..	1	..	..	..	1
501–600 ..	F	1	..	1	1	3	1	..	0	..	..	..	0
	AT	..	..	3	3	8	5	..	1	..	..	..	1
601–700 ..	F	..	..	0	1	2	0	..	0	..	..	..	1
	AT	..	..	2	2	5	4	..	1	..	..	..	..
701–800 ..	F	..	..	0	0	0	1	..	0	..	..	..	..
	AT	..	..	2	1	3	4	..	1	..	..	..	..
801–900 ..	F	..	..	1	1	1	0	..	1	..	..	..	..
	AT	..	..	2	..	3	3	..	..	..	..	..	..
901–1000 ..	F	..	..	1	..	0	1	..	..	..	..	..	..
	AT	..	..	..	..	2	3	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	..	1	0	..	..	..	..	..	..
	AT	..	..	..	..	2	2	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	..	1	0	..	..	..	..	..	..
	AT	..	..	..	..	..	2	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	..	..	2	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

ADAVALE (1515).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	224	224	240	250	234	232	164	130	82	91	130	160
0 ..	F	12	5	5	4	3	8	16	13	9	11	19	17
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	27	30	20	24	20	24	23	28	25	31	32	28
	AT	46	53	53	54	55	50	42	45	49	47	39	41
101–200 ..	F	10	11	12	10	12	7	13	9	14	7	3	3
	AT	19	23	33	30	35	26	19	17	24	16	7	13
201–300 ..	F	4	8	12	7	7	7	4	4	3	7	3	5
	AT	9	12	21	20	23	19	6	8	10	9	4	10
301–400 ..	F	1	0	2	5	5	3	2	4	6	1	1	5
	AT	5	4	9	13	16	12	..	..	7	2	..	..
401–500 ..	F	1	4	6	4	3	3	..	..	1	0	..	..
	AT	4	..	7	8	11	9	..	..	..	1	..	..
501–600 ..	F	2	..	0	0	1	3	..	..	..	0	..	..
	AT	3	..	1	4	8	6	..	..	..	1	..	..
601–700 ..	F	0	..	0	1	1	0	..	..	..	0	..	..
	AT	1	..	1	4	7	3	..	..	..	1	..	..
701–800 ..	F	1	..	1	0	5	1	..	..	..	0	..	..
	AT	..	..	..	3	6	3	..	..	..	1	..	..
801–900 ..	F	..	..	..	1	0	0	..	..	..	0	..	..
	AT	..	..	..	3	1	2	..	..	..	1	..	..
901–1000 ..	F	..	..	..	1	1	1	..	..	..	1	..	..
	AT	..	..	..	2	..	2	..	..	..	..	..	..
*													
1101–1200 ..	F	..	..	..	1	..	1	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

WYANDRA (1676), 1898–1951.

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	190	194	212	222	194	200	150	114	69	72	114	140
0 ..	F	10	3	3	4	6	5	11	9	3	11	12	11
	AT	53	53	53	53	53	53	53	53	53	53	53	53
1–100 ..	F	25	26	17	22	15	21	23	27	26	21	30	26
	AT	43	50	50	49	47	48	42	44	50	42	41	42
101–200 ..	F	10	16	13	12	11	13	12	8	12	12	8	7
	AT	18	24	33	27	32	27	19	17	24	21	11	16
201–300 ..	F	5	2	11	7	4	3	4	7	8	5	1	5
	AT	8	8	20	15	21	14	7	9	12	9	3	9
301–400 ..	F	0	4	3	4	9	2	3	2	3	2	1	2
	AT	3	6	9	8	17	11	..	..	4	4	2	4
401–500 ..	F	1	1	1	2	4	3	..	..	0	1	1	0
	AT	3	2	6	4	8	9	..	..	1	2	..	2
501–600 ..	F	1	0	5	0	2	3	..	..	1	0	..	1
	AT	2	1	..	2	4	6	..	..	..	1	..	2
601–700 ..	F	1	1	..	1	0	2	..	..	..	0	..	0
	AT	..	..	..	2	2	3	..	..	..	1	..	1
701–800 ..	F	..	..	..	0	1	1	..	..	..	0	..	1
	AT	..	..	..	1	2	..	..	..	..	1	..	..
801–900 ..	F	..	..	..	0	0	..	..	..	..	1	..	..
	AT	..	..	..	1	1	..	..	..	..	..	..	..
901–1000 ..	F	..	..	..	0	1	..	..	..	..	..	..	..
	AT	..	..	..	1	..	..	..	..	..	..	..	..
*													
1501–1600 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

CUNNAMULLA (1507).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	196	198	208	224	192	200	144	110	72	67	110	140
0 ..	F	7	5	3	3	8	6	12	11	2	5	14	12
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	35	29	24	28	19	29	30	29	32	35	36	31
	AT	51	53	55	55	50	52	46	47	56	53	44	46
101–200 ..	F	12	10	17	15	8	11	11	8	12	13	5	10
	AT	16	24	31	27	31	23	16	18	24	18	8	15
201–300 ..	F	2	8	7	7	8	3	2	7	9	2	2	3
	AT	4	14	14	12	23	12	5	10	12	5	3	5
301–400 ..	F	1	5	5	2	7	3	2	1	2	1	0	0
	AT	2	6	7	5	15	9	3	3	3	3	1	2
401–500 ..	F	0	1	1	1	5	3	0	2	1	1	1	1
	AT	1	..	2	3	8	6	1	..	..	2	..	2
501–600 ..	F	1	..	0	1	1	1	0	..	..	1	..	0
	AT	..	..	1	2	3	3	1	..	..	..	..	1
601–700 ..	F	..	..	0	0	0	0	1	..	..	..	..	1
	AT	..	..	1	1	2	2	..	..	..	..	..	..
701–800 ..	F	..	..	0	0	1	1	..	..	..	..	..	..
	AT	..	..	1	1	2	2	..	..	..	..	..	..
801–900 ..	F	..	..	0	0	1	0	..	..	..	..	..	..
	AT	..	..	1	1	..	1	..	..	..	..	..	..
1001–1100 ..	F	..	..	0	1	..	1	..	..	..	..	..	..
	AT	..	..	1	..	..	..	..	..	..	..	..	..
1401–1500 ..	F	..	..	1	..	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

CLONCURRY (1883).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	308	259	256	234	208	248	248	226	173	168	225	244
0 ..	F	14	7	4	0	3	4	22	26	24	35	44	27
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	35	19	14	7	10	20	24	25	23	16	12	26
	AT	44	51	54	58	55	54	36	32	34	23	14	31
101–200 ..	F	3	15	14	14	5	10	6	2	5	3	0	4
	AT	9	32	40	51	45	34	12	7	11	7	2	5
201–300 ..	F	4	11	12	6	8	5	3	3	4	2	2	0
	AT	6	17	26	37	40	24	6	5	6	4	..	1
301–400 ..	F	2	3	4	8	5	8	3	1	1	2	..	0
	AT	..	6	14	31	32	19	..	2	2	..	..	1
401–500 ..	F	..	2	3	8	5	4	..	1	0	..	..	1
	AT	..	3	10	23	27	11	..	..	1	..	..	..
501–600 ..	F	..	1	2	0	3	1	..	..	0	..	..	..
	AT	..	..	7	15	22	7	..	..	1	..	..	..
601–700 ..	F	..	..	2	4	5	3	..	..	0	..	..	..
	AT	..	..	5	15	19	6	..	..	1	..	..	..
701–800 ..	F	..	..	0	5	4	0	..	..	1	..	..	..
	AT	..	..	3	11	14	3	..	..	..	..	..	..
801–900 ..	F	..	..	0	0	4	1	..	..	..	..	..	..
	AT	..	..	3	6	10	3	..	..	..	..	..	..
901–1000 ..	F	..	..	0	2	1	1	..	..	..	..	..	..
	AT	..	..	3	6	6	2	..	..	..	..	..	..
1001–1100 ..	F	..	..	1	1	0	1	..	..	..	..	..	..
	AT	..	..	3	4	5	..	..	..	..	..	..	..
1101–1200 ..	F	..	..	1	1	2	..	..	..	..	..	..	..
	AT	..	..	2	3	5	..	..	..	..	..	..	..
1201–1300 ..	F	..	..	0	0	1	..	..	..	..	..	..	..
	AT	..	..	1	2	3	..	..	..	..	..	..	..
1301–1400 ..	F	..	..	0	1	0	..	..	..	..	..	..	..
	AT	..	..	1	2	2	..	..	..	..	..	..	..
1401–1500 ..	F	..	..	0	0	1	..	..	..	..	..	..	..
	AT	..	..	1	1	2	..	..	..	..	..	..	..
*													
1701–1800 ..	F	..	..	0	0	1	..	..	..	..	..	..	..
	AT	..	..	1	1	..	..	..	..	..	..	..	..
*													
1901–2000 ..	F	..	..	0	1	..	..	..	..	..	..	..	..
	AT	..	..	1	..	..	..	..	..	..	..	..	..
2001–2100 ..	F	..	..	1	..	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

RICHMOND (1942).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	284	243	237	198	170	212	204	178	134	149	197	220
0 ..	F	13	5	2	0	2	5	21	21	19	33	38	30
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	36	31	13	7	6	23	21	28	26	16	18	22
	AT	45	53	56	58	56	53	37	37	39	25	20	28
101–200 ..	F	4	10	12	12	13	6	6	3	8	5	2	5
	AT	9	22	43	51	50	30	16	9	13	9	..	6
201–300 ..	F	2	2	11	10	8	7	6	4	2	2	..	1
	AT	5	12	31	39	37	24	10	6	5	4	..	..
301–400 ..	F	1	5	4	7	4	3	1	1	1	2	..	..
	AT	3	10	20	29	29	17	4	2	3	..	..	..
401–500 ..	F	0	2	7	4	6	1	0	0	2	..	..	..
	AT	2	5	16	22	25	14	3	1	..	..	..	..
501–600 ..	F	2	3	3	4	3	8	3	1	..	..	..	..
	AT	..	..	9	18	19	13	..	..	..	..	..	..
601–700 ..	F	..	..	4	5	5	1	..	..	..	..	..	..
	AT	..	..	6	14	16	5	..	..	..	..	..	..
701–800 ..	F	..	..	1	3	4	1	..	..	..	..	..	..
	AT	..	..	2	9	11	4	..	..	..	..	..	..
801–900 ..	F	..	..	1	1	1	1	..	..	..	..	..	..
	AT	..	..	..	6	7	3	..	..	..	..	..	..
901–1000 ..	F	..	..	..	0	0	2	..	..	..	..	..	..
	AT	..	..	..	5	6	..	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	2	4	..	..	..	..	..	..	..
	AT	..	..	..	5	6	..	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	1	0	..	..	..	..	..	..	..
	AT	..	..	..	3	2	..	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	2	1	..	..	..	..	..	..	..
	AT	..	..	..	..	2	..	..	..	..	..	..	..
1701–1800 ..	F	..	..	..	..	1	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

HUGHENDEN (2051).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	256	224	214	170	150	176	168	158	110	120	168	184
0 ..	F	12	5	1	0	2	4	19	25	14	24	36	24
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	31	27	17	9	5	23	25	21	30	21	18	26
	AT	46	53	57	58	56	54	39	33	44	34	22	34
101–200 ..	F	9	12	14	9	11	9	7	8	6	11	2	5
	AT	15	26	40	49	51	31	14	12	14	13	4	8
201–300 ..	F	1	10	6	7	10	6	1	1	7	2	2	2
	AT	6	14	26	40	40	22	7	4	8	..	..	3
301–400 ..	F	2	2	6	7	8	7	4	2	0	..	..	1
	AT	5	4	20	33	30	16	6	3	1	..	..	..
401–500 ..	F	1	0	6	6	6	1	1	0	0	..	..	..
	AT	3	2	14	26	22	9	2	1	1	..	..	..
501–600 ..	F	2	1	2	3	5	1	0	1	0	..	..	..
	AT	..	2	8	20	16	8	1	..	1	..	..	..
601–700 ..	F	..	1	0	8	2	3	1	..	1	..	..	..
	AT	..	6	17	17	17	7	..	..	..	..	..	..
701–800 ..	F	..	..	1	1	1	2	..	..	..	..	..	..
	AT	..	..	6	9	9	4	..	..	..	..	..	..
801–900 ..	F	..	..	1	2	2	1	..	..	..	..	..	..
	AT	..	..	5	8	8	2	..	..	..	..	..	..
901–1000 ..	F	..	..	1	2	2	0	..	..	..	..	..	..
	AT	..	..	4	6	6	1	..	..	..	..	..	..
1001–1100 ..	F	..	..	1	1	0	1	..	..	..	..	..	..
	AT	..	..	3	4	4	..	..	..	..	..	..	..
1101–1200 ..	F	..	..	1	1	2	..	..	..	..	..	..	..
	AT	..	..	2	3	4	..	..	..	..	..	..	..
1201–1300 ..	F	..	..	1	0	1	..	..	..	..	..	..	..
	AT	..	..	..	2	2	..	..	..	..	..	..	..
1301–1400 ..	F	..	..	..	0	1	..	..	..	..	..	..	..
	AT	..	..	..	2	..	..	..	..	..	..	..	..
*													
1501–1600 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	2	..	..	..	..	..	..	..	..
*													
2101–2200 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

ARAMAC (1916).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	220	192	200	196	162	180	160	138	99	102	141	160
0 ..	F	9	6	4	1	3	3	16	17	10	21	23	20
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	28	28	13	20	15	27	22	25	28	21	28	25
	AT	49	52	54	57	55	55	42	41	48	37	35	38
101–200 ..	F	12	9	21	10	14	5	11	7	10	5	4	7
	AT	21	24	41	37	40	28	20	16	20	16	7	13
201–300 ..	F	4	10	9	5	8	7	3	7	6	6	2	2
	AT	9	15	20	27	26	23	9	9	10	11	3	6
301–400 ..	F	4	1	3	5	6	4	2	2	0	4	1	2
	AT	5	5	11	22	18	16	6	..	4	5	..	4
401–500 ..	F	0	1	4	7	1	6	2	..	2	0	..	2
	AT	1	4	8	17	12	12	4	..	4	1	..	..
501–600 ..	F	0	0	0	1	2	0	1	..	1	1	..	..
	AT	1	3	4	10	11	6	2	..	2	..	..	..
601–700 ..	F	1	0	1	3	0	4	1	..	1	..	..	..
	AT	..	3	4	9	9	6	..	..	..	..	..	..
701–800 ..	F	..	1	1	2	4	1	..	..	..	..	..	..
	AT	..	3	3	6	9	2	..	..	..	..	..	..
801–900 ..	F	..	1	1	1	1	0	..	..	..	..	..	..
	AT	..	2	2	4	5	1	..	..	..	..	..	..
901–1000 ..	F	..	0	0	0	1	0	..	..	..	..	..	..
	AT	..	1	1	3	4	1	..	..	..	..	..	..
1001–1100 ..	F	..	0	0	1	2	0	..	..	..	..	..	..
	AT	..	1	1	3	3	1	..	..	..	..	..	..
1101–1200 ..	F	..	0	1	1	1	0	..	..	..	..	..	..
	AT	..	1	..	2	..	1	..	..	..	..	..	..
1201–1300 ..	F	..	0	..	1	..	1	..	..	..	..	..	..
	AT	..	1	..	..	..	..	..	..	..	..	..	..
1301–1400 ..	F	..	1	..	..	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

ISISFORD (1811).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	224	208	205	211	179	204	164	139	101	106	144	160
0 ..	F	8	3	2	2	3	11	19	10	13	18	16	17
	AT	58	58	58	58	58	58	58	57	58	58	58	58
1–100 ..	F	30	32	17	22	15	18	19	34	27	22	39	29
	AT	50	55	56	56	55	47	39	47	45	40	42	41
101–200 ..	F	8	9	22	13	12	9	7	4	9	10	2	6
	AT	20	23	39	34	40	29	20	13	18	18	3	12
201–300 ..	F	4	8	7	5	8	4	7	5	5	4	0	2
	AT	12	14	17	21	28	20	13	9	9	8	1	6
301–400 ..	F	3	2	4	6	6	3	5	1	1	1	1	3
	AT	8	6	10	16	20	16	6	4	4	4	..	4
401–500 ..	F	3	3	3	4	1	0	0	2	3	2	..	1
	AT	5	4	6	10	14	13	1	3	..	3	..	..
501–600 ..	F	2	0	3	0	5	1	0	1	..	0	..	..
	AT	..	1	..	6	13	13	1	..	..	1	..	..
601–700 ..	F	..	1	..	2	0	4	0	..	..	1	..	..
	AT	..	..	..	6	8	12	1	..	..	..	..	..
701–800 ..	F	..	..	..	1	1	2	0	..	..	..	..	..
	AT	..	..	..	4	8	8	1	..	..	..	..	..
801–900 ..	F	..	..	..	0	1	2	0	..	..	..	..	..
	AT	..	..	..	3	7	6	1	..	..	..	..	..
901–1000 ..	F	..	..	..	1	1	1	1	..	..	..	..	..
	AT	..	..	..	3	6	4	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	0	2	2	..	..	..	..	..	..
	AT	..	..	..	2	5	3	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	1	1	1	..	..	..	..	..	..
	AT	..	..	..	2	3	..	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	1	0	..	..	..	..	..	..	..
	AT	..	..	..	..	2	..	..	..	..	..	..	..
1301–1400 ..	F	..	..	..	..	2	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

There is no record for May, 1946.

LISTOWEL DOWNS (1814), 1898–1951.

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	210	206	220	220	200	200	160	120	84	87	126	160
0 ..	F	6	3	4	0	3	4	13	14	5	11	15	12
	AT	54	54	54	54	54	54	54	54	53	53	53	53
1–100 ..	F	26	23	12	19	12	19	17	21	29	23	24	28
	AT	48	51	50	54	51	50	41	40	48	42	38	41
101–200 ..	F	11	13	15	15	13	12	12	12	9	10	8	6
	AT	22	28	38	35	39	31	24	19	19	19	14	13
201–300 ..	F	7	7	6	4	11	2	8	3	4	4	6	4
	AT	11	15	23	20	26	19	12	7	10	9	..	7
301–400 ..	F	1	5	7	3	5	5	2	3	4	1	..	1
	AT	4	8	17	16	15	17	4	4	6	5	..	3
401–500 ..	F	2	2	3	3	5	0	1	1	0	0	..	1
	AT	3	3	10	13	10	12	2	..	2	4	..	2
501–600 ..	F	0	0	4	2	1	3	0	..	0	3	..	1
	AT	1	1	7	10	5	12	1	..	2	4	..	..
601–700 ..	F	1	0	2	2	0	5	1	..	1	0	..	..
	AT	..	1	3	8	4	9	..	..	2	1	..	..
701–800 ..	F	..	1	1	2	1	1	..	..	0	1	..	..
	AT	..	..	..	6	4	4	..	..	1	..	..	..
801–900 ..	F	..	..	..	2	2	0	..	..	0	..	..	..
	AT	..	..	..	4	3	3	..	..	1	..	..	..
901–1000 ..	F	..	..	..	0	1	0	..	..	1	..	..	..
	AT	..	..	..	2	..	3	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	0	..	1	..	..	..	..	..	..
	AT	..	..	..	2	..	3	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	0	..	1	..	..	..	..	..	..
	AT	..	..	..	2	..	2	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	1	..	1	..	..	..	..	..	..
	AT	..	..	..	2	..	..	..	..	..	..	..	..
1301–1400 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

There are no records for June to September, 1951.

BOATMAN (1750), 1910–1951.

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	180	180	198	204	176	180	140	108	63	66	108	130
0 ..	F	2	2	1	0	3	4	11	7	4	6	10	9
	AT	42	42	42	42	42	42	42	42	41	41	41	41
1–100 ..	F	28	17	12	12	10	16	19	19	17	18	19	19
	AT	40	40	41	42	39	38	31	35	37	35	31	32
101–200 ..	F	5	11	12	10	11	8	5	10	11	10	8	5
	AT	12	23	29	30	29	22	12	16	20	17	12	13
201–300 ..	F	4	5	6	4	7	4	5	5	6	3	3	3
	AT	7	12	17	20	18	14	7	6	9	7	4	8
301–400 ..	F	1	3	2	10	2	4	2	1	1	2	1	3
	AT	3	7	11	16	11	10	..	..	3	4	..	5
401–500 ..	F	2	3	4	2	3	0	..	..	1	1	..	1
	AT	..	4	9	6	9	6	..	..	2	2	..	2
501–600 ..	F	..	1	4	2	1	4	..	..	0	0	..	1
	AT	..	..	5	4	6	6	..	..	1	1	..	..
601–700 ..	F	..	..	0	1	1	1	..	..	0	0	..	1
	AT	..	..	1	2	5	2	..	..	1	1	..	..
701–800 ..	F	..	..	1	0	1	1	..	..	0	1	..	..
	AT	..	..	..	1	4	..	..	..	1	..	..	..
801–900 ..	F	..	..	..	0	2	..	..	..	1	..	..	..
	AT	..	..	..	1	3	..	..	..	..	..	..	..
901–1000 ..	F	..	..	..	0	1	..	..	..	..	..	..	..
	AT	..	..	..	1	..	..	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	.	..	..	..

There are no records for June to September, 1951.

BOLLON (1619).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	180	176	191	205	180	180	126	103	65	59	92	122
0 ..	F	1	4	1	0	0	4	8	7	2	5	10	5
	AT	58	58	58	57	57	57	57	57	57	57	58	58
1–100 ..	F	34	25	20	21	28	24	25	31	27	29	31	33
	AT	57	54	57	57	57	53	49	50	55	52	48	53
101–200 ..	F	12	15	12	10	9	14	15	10	13	14	10	12
	AT	23	29	37	36	29	29	24	19	28	23	17	20
201–300 ..	F	5	8	9	10	7	6	6	3	8	7	2	5
	AT	11	14	25	26	20	15	9	9	15	9	7	8
301–400 ..	F	2	1	9	9	3	3	0	3	5	0	5	2
	AT	6	6	16	16	13	9	3	6	7	2	..	3
401–500 ..	F	2	4	3	3	3	4	1	3	1	1	..	0
	AT	4	5	7	7	10	6	3	..	2	2	..	1
501–600 ..	F	2	1	1	2	3	1	0	..	1	0	..	1
	AT	..	..	4	4	7	2	2	..	..	1	..	..
601–700 ..	F	..	..	2	1	3	0	2	..	..	0	..	..
	AT	..	..	3	2	4	1	..	..	..	1	..	..
701–800 ..	F	..	..	1	0	1	0	..	..	..	1	..	..
	AT	..	..	..	1	..	1	..	..	..	..	..	..
801–900 ..	F	..	..	..	0	..	0	..	..	..	..	..	..
	AT	..	..	..	1	..	1	..	..	..	..	..	..
901–1000 ..	F	..	..	..	1	..	1	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

There are no records for January to July, 1903.

DIRRANBANDI (1678).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	182	174	196	214	192	192	132	102	92	63	99	128
0 ..	F	1	3	2	1	5	5	9	10	2	7	7	6
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	30	25	15	17	22	17	29	26	23	30	34	28
	AT	57	55	56	57	53	53	49	48	56	51	51	52
101–200 ..	F	20	15	16	19	9	14	11	10	18	14	11	19
	AT	27	30	41	40	31	36	20	22	33	21	17	24
201–300 ..	F	4	7	8	7	7	9	4	2	7	3	4	4
	AT	7	15	25	21	22	22	9	12	15	7	6	5
301–400 ..	F	1	2	10	3	6	4	3	6	5	1	2	0
	AT	3	8	17	14	15	13	5	10	8	4	..	1
401–500 ..	F	1	3	4	5	3	4	1	4	3	1	..	0
	AT	2	6	7	11	9	9	2	..	..	3	..	1
501–600 ..	F	1	1	1	3	3	3	1	..	..	1	..	0
	AT	..	3	3	6	6	5	..	..	..	2	..	1
601–700 ..	F	..	1	1	3	2	1	..	..	..	0	..	1
	AT	..	2	2	..	3	2	..	..	..	1	..	..
701–800 ..	F	..	0	0	..	1	0	..	..	..	1	..	..
	AT	..	1	1	..	..	1	..	..	..	..	..	..
801–900 ..	F	..	1	1	..	..	0	..	..	..	..	..	..
	AT	..	..	..	..	..	1	..	..	..	..	..	..
901–1000 ..	F	..	..	..	..	..	0	..	..	..	..	..	..
	AT	..	..	..	..	..	1	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	..	..	1	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

THALLON (1777), 1914–1951.

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	178	168	184	202	180	185	128	99	72	60	96	125
0 ..	F	3	2	2	2	4	6	6	6	1	5	4	4
	AT	36	37	37	38	37	37	37	37	37	37	36	37
1–100 ..	F	14	11	12	6	13	12	20	18	14	17	22	16
	AT	33	35	35	36	33	31	31	31	36	32	32	33
101–200 ..	F	12	8	4	12	6	8	7	5	13	8	5	11
	AT	19	24	23	30	20	19	11	13	22	15	10	17
201–300 ..	F	6	6	8	7	5	4	3	2	4	3	3	4
	AT	7	16	19	18	14	11	4	8	9	7	5	6
301–400 ..	F	0	4	5	6	4	2	0	5	2	2	1	2
	AT	1	10	11	11	9	7	1	6	5	4	2	..
401–500 ..	F	1	4	2	1	1	0	1	1	3	0	1	..
	AT	..	6	6	5	5	5	..	..	..	2	..	..
501–600 ..	F	..	2	3	2	1	3	..	..	..	0	..	..
	AT	..	..	4	4	4	5	..	..	..	2	..	..
601–700 ..	F	..	..	0	0	1	1	..	..	..	0	..	..
	AT	..	..	1	2	3	2	..	..	..	2	..	..
701–800 ..	F	..	..	1	2	0	1	..	..	..	1	..	..
	AT	..	..	..	..	2	..	..	..	..	2	..	..
801–900 ..	F	..	..	..	..	2	..	..	..	..	1	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

There are no records for February to December, 1926, August, 1946, and October, 1946.

TORRENS CREEK (2397), 1897–1951.

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	240	210	200	166	140	170	160	162	114	120	165	170
0 ..	F	12	8	4	0	3	6	18	21	11	26	26	26
	AT	54	54	54	54	54	54	54	54	54	54	54	54
1–100 ..	F	25	27	13	9	10	16	16	22	23	18	24	17
	AT	42	46	50	54	51	48	36	33	43	28	28	28
101–200 ..	F	5	6	7	12	6	11	9	5	14	5	2	5
	AT	17	19	37	45	41	32	20	11	20	10	4	11
201–300 ..	F	9	3	9	7	6	2	5	4	4	3	1	4
	AT	12	13	30	33	35	21	11	6	6	5	2	6
301–400 ..	F	3	3	9	4	6	4	3	1	0	2	1	1
	AT	..	10	21	26	29	19	6	2	2	..	..	2
401–500 ..	F	..	3	5	4	7	4	3	0	2	..	..	1
	AT	..	7	12	22	23	15	..	1	..	..	..	..
501–600 ..	F	..	2	0	3	4	4	..	0	..	..	..	..
	AT	..	4	7	18	16	11	..	1	..	..	..	..
601–700 ..	F	..	2	1	3	3	3	..	1	..	..	..	..
	AT	..	..	7	15	12	7	..	..	..	..	..	..
701–800 .	F	..	..	1	1	2	1	..	..	..	..	..	..
	AT	..	..	6	12	9	4	..	..	..	..	..	..
801–900 ..	F	..	..	2	5	1	0	..	..	..	..	..	..
	AT	..	..	5	11	7	3	..	..	..	..	..	..
901–1000 ..	F	..	..	1	0	1	0	..	..	..	..	..	..
	AT	..	..	3	6	6	3	..	..	..	..	..	..
1001–1100 ..	F	..	..	2	2	1	1	..	..	..	..	..	..
	AT	..	..	..	6	5	3	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	0	1	1	..	..	..	..	..	..
	AT	..	..	..	4	4	2	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	0	1	1	..	..	..	..	..	..
	AT	..	..	..	4	3	..	..	..	..	..	..	..
1301–1400 ..	F	..	..	..	2	1	..	..	..	..	..	..	..
	AT	..	..	..	4	2	..	..	..	..	..	..	..
1401–1500 ..	F	..	..	..	0	0	..	..	..	..	..	..	..
	AT	..	..	..	2	1	..	..	..	..	..	..	..
1501–1600 ..	F	..	..	..	1	0	..	..	..	..	..	..	..
	AT	..	..	..	2	1	..	..	..	..	..	..	..
1901–2000 ..	F	..	..	..	0	1	..	..	..	..	..	..	..
	AT	..	..	..	1	..	..	..	..	..	..	..	..
2601–2700 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

BARCALDINE (2047).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	224	192	198	196	163	196	156	139	96	101	139	164
0 ..	F	4	0	1	1	0	3	12	12	8	17	15	14
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	31	30	17	13	20	25	23	27	26	21	32	29
	AT	54	58	57	57	58	55	46	46	50	41	43	44
101–200 ..	F	10	14	17	14	10	10	12	11	10	9	6	8
	AT	23	28	40	44	38	30	23	19	24	20	11	15
201–300 ..	F	6	8	10	8	6	4	3	3	8	5	5	5
	AT	13	14	23	30	28	20	11	8	14	11	..	7
301–400 ..	F	4	2	4	10	4	5	5	2	3	2	..	1
	AT	7	6	13	22	22	16	8	5	6	6	..	2
401–500 ..	F	1	2	2	5	4	0	0	3	3	2	..	1
	AT	3	4	9	12	18	11	3	..	..	4	..	..
501–600 ..	F	1	1	2	1	4	3	2	..	..	1	..	..
	AT	2	2	7	7	14	11	3	..	..	2	..	..
601–700 ..	F	1	0	3	0	3	0	1	..	..	1	..	..
	AT	..	1	5	6	10	8	..	..	..	..	..	..
701–800 ..	F	..	0	0	3	4	4	..	..	..	..	..	..
	AT	..	1	2	6	7	8	..	..	..	..	..	..
801–900 ..	F	..	1	0	1	1	0	..	..	..	..	..	..
	AT	..	..	2	3	3	4	..	..	..	..	..	..
901–1000 ..	F	..	..	0	0	0	0	..	..	..	..	..	..
	AT	..	..	2	2	2	4	..	..	..	..	..	..
1001–1100 ..	F	..	..	1	1	0	0	..	..	..	..	..	..
	AT	..	..	2	2	2	4	..	..	..	..	..	..
1101–1200 ..	F	..	..	1	0	1	0	..	..	..	..	..	..
	AT	..	..	..	1	2	4	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	0	0	3	..	..	..	..	..	..
	AT	..	..	..	1	1	4	..	..	..	..	..	..
1301–1400 ..	F	..	..	..	1	0	1	..	..	..	..	..	..
	AT	..	..	..	..	1	..	..	..	..	..	..	..
1401–1500 ..	F	..	..	..	..	1	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

JERICHO (2164), 1905-1951.

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	210	190	190	180	154	180	150	135	96	96	135	160
0 ..	F	4	1	2	1	2	2	14	14	6	16	16	14
	AT	47	47	47	47	47	47	47	47	47	47	47	47
1–100 ..	F	21	19	11	9	16	16	17	24	18	16	21	18
	AT	43	46	45	46	45	45	33	33	41	31	31	33
101–200 ..	F	10	9	10	10	7	11	5	5	13	6	6	9
	AT	22	27	34	37	29	29	16	9	23	15	10	15
201–300 ..	F	6	9	8	10	6	5	4	3	5	4	1	3
	AT	12	18	24	27	22	18	11	4	10	9	4	6
301–400 ..	F	2	3	7	5	4	3	2	0	3	2	2	1
	AT	6	9	16	17	16	13	7	1	5	5	3	3
401–500 ..	F	2	2	4	4	1	2	3	1	1	2	0	1
	AT	4	6	9	12	12	10	5	..	2	3	1	2
501–600 ..	F	1	1	1	3	5	1	0	..	0	0	1	1
	AT	2	4	5	8	11	8	2	..	1	1	..	..
601–700 ..	F	1	0	1	0	1	4	2	..	1	0	..	..
	AT	..	3	4	5	6	7	..	..	..	1	..	..
701–800 ..	F	..	1	0	1	0	1	..	..	..	0	..	..
	AT	..	3	3	5	5	3	..	..	..	1	..	..
801–900 ..	F	..	0	1	0	2	0	..	..	..	1	..	..
	AT	..	2	3	4	5	2	..	..	..	..	..	..
901–1000 ..	F	..	0	0	2	1	1	..	..	..	..	..	..
	AT	..	2	2	4	3	2	..	..	..	..	..	..
1001–1100 ..	F	..	0	1	1	2	0	..	..	..	..	..	..
	AT	..	2	2	2	..	1	..	..	..	..	..	..
*													
1201–1300 ..	F	..	1	0	0	..	0	..	..	..	..	..	..
	AT	..	2	1	1	..	1	..	..	..	..	..	..
1301–1400 ..	F	..	0	1	0	..	1	..	..	..	..	..	..
	AT	..	1	..	1	..	..	..	..	..	..	..	..
1401–1500 ..	F	..	1	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

ALPHA (2042).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	200	184	184	170	148	180	150	132	93	93	132	150
0 ..	F	7	5	3	0	1	2	13	17	8	16	18	16
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	24	14	15	11	17	21	23	22	22	26	26	26
	AT	51	53	55	58	57	56	45	41	50	42	40	42
101–200 ..	F	13	18	14	7	13	15	12	9	16	4	10	7
	AT	27	39	40	47	40	35	22	19	28	16	14	16
201–300 ..	F	7	12	9	16	9	9	5	5	8	6	3	5
	AT	14	21	26	40	27	20	10	10	12	12	4	9
301–400 ..	F	4	4	5	8	2	2	3	1	1	2	0	1
	AT	7	9	17	24	18	11	5	5	4	6	1	4
401–500 ..	F	1	1	2	7	8	1	1	3	1	2	1	3
	AT	3	5	12	16	16	9	2	4	3	4	..	..
501–600 ..	F	0	2	2	2	0	1	0	1	1	1	..	..
	AT	2	4	10	9	8	8	1	..	2	2	..	..
601–700 ..	F	0	0	4	2	2	5	0	..	0	0	..	..
	AT	2	2	8	7	8	7	1	..	1	1	..	..
701–800 ..	F	1	0	1	1	1	0	0	..	0	1	..	..
	AT	2	2	4	5	6	2	1	..	1	..	..	..
801–900 ..	F	0	0	1	0	1	0	1	..	0	..	..	..
	AT	1	2	3	4	5	2	..	..	1	..	..	..
901–1000 ..	F	0	1	1	1	1	0	..	..	0	..	..	..
	AT	1	2	2	4	4	2	..	..	1	..	..	..
1001–1100 ..	F	1	1	1	0	1	0	..	..	0	..	..	..
	AT	..	..	..	3	3	2	..	..	1	..	..	..
1101–1200 ..	F	..	..	..	2	2	2	..	..	0	..	..	..
	AT	..	..	..	3	..	..	..	..	1	..	..	..
1201–1300 ..	F	..	..	..	0	..	..	..	..	0	..	..	..
	AT	..	..	..	1	..	..	..	..	1	..	..	..
1301–1400 ..	F	..	..	..	0	..	..	..	..	1	..	..	..
	AT	..	..	..	1	..	..	..	..	..	..	..	..
1401–1500 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

BLACKALL (2122).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	224	202	218	214	182	196	164	125	86	91	130	156
0 ..	F	6	2	2	1	1	1	8	12	9	11	14	13
	AT	58	58	58	58	58	58	57	58	58	58	58	58
1–100 ..	F	28	23	20	16	16	20	27	28	27	27	30	33
	AT	52	56	56	57	57	57	49	46	49	47	44	45
101–200 ..	F	10	16	10	13	12	10	9	7	10	11	10	5
	AT	24	33	36	41	41	37	22	18	22	20	14	12
201–300 ..	F	3	8	9	9	4	10	4	6	7	3	3	2
	AT	14	17	26	28	29	27	13	11	12	9	4	7
301–400 ..	F	7	5	5	5	11	4	5	3	2	2	1	2
	AT	11	9	17	19	25	17	9	5	5	6	..	5
401–500 ..	F	2	2	3	4	1	3	1	1	1	3	..	3
	AT	4	4	12	14	14	13	4	2	3	4	..	..
501–600 ..	F	1	1	5	1	4	6	2	1	1	0	..	..
	AT	2	2	9	10	13	10	3	..	2	1	..	..
601–700 ..	F	1	0	0	3	3	1	1	..	1	1	..	..
	AT	..	1	4	9	9	4	..	..	..	..	..	..
701–800 ..	F	..	1	4	3	2	0	..	..	..	..	..	..
	AT	..	..	..	6	6	3	..	..	..	..	..	..
801–900 ..	F	..	..	..	1	2	1	..	..	..	..	..	..
	AT	..	..	..	3	4	3	..	..	..	..	..	..
901–1000 ..	F	..	..	..	0	0	0	..	..	..	..	..	..
	AT	..	..	..	2	2	2	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	0	0	1	..	..	..	..	..	..
	AT	..	..	..	2	2	2	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	0	1	1	..	..	..	..	..	..
	AT	..	..	..	2	2	..	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	1	0	..	..	..	..	..	..	..
	AT	..	..	..	2	1	..	..	..	..	..	..	..
1301–1400 ..	F	..	..	..	1	1	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	.	..

There is no record for April, 1947.

TAMBO (2083).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	188	173	186	179	150	168	140	110	72	77	110	144
0 ..	F	5	2	1	2	0	3	12	10	5	9	14	10
	AT	58	57	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	29	19	12	9	12	19	25	30	25	26	29	32
	AT	53	55	57	56	58	55	46	48	53	49	44	48
101–200 ..	F	10	15	16	12	16	9	7	7	19	10	12	8
	AT	24	36	45	47	46	36	21	18	28	23	15	16
201–300 ..	F	9	10	8	15	9	10	6	8	4	8	2	4
	AT	14	21	29	35	30	27	14	11	9	13	3	8
301–400 ..	F	2	4	8	8	5	7	3	3	2	3	0	2
	AT	5	11	21	20	21	17	8	..	5	5	1	4
401–500 ..	F	1	2	5	2	7	4	1	..	3	0	0	1
	AT	3	7	13	12	16	10	5	..	..	2	1	2
501–600 ..	F	1	2	2	5	3	1	2	..	..	0	1	1
	AT	2	5	8	10	9	6	4	..	..	2	..	..
601–700 ..	F	1	3	0	3	3	2	1	..	..	2	..	..
	AT	..	..	6	5	6	5	2	..	..	..	..	..
701–800 ..	F	..	..	5	0	0	1	1	..	..	..	..	..
	AT	..	..	6	2	3	3	..	..	..	..	..	..
801–900 ..	F	..	..	1	0	0	0	..	..	..	..	..	..
	AT	..	..	..	2	3	2	..	..	..	..	..	..
901–1000 ..	F	..	..	..	0	2	0	..	..	..	..	..	..
	AT	..	..	..	2	3	2	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	1	1	1	..	..	..	..	..	..
	AT	..	..	..	2	..	2	..	..	..	..	..	..
*													
1201–1300 ..	F	..	..	..	1	.	0	..	..	..	..	..	..
	AT	..	..	..	..	..	1	..	..	..	..	..	..
1301–1400 ..	F	..	..	..	..	..	1	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

There is no record for November, 1919.

AUGATHELLA (1877).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	190	180	200	192	170	180	140	108	69	72	114	140
0 ..	F	3	0	2	2	3	5	14	16	8	9	14	10
	AT	58	58	58	58	58	58	58	58	58	58	57	58
1–100 ..	F	26	27	16	13	12	20	22	18	23	26	28	28
	AT	55	58	56	56	55	53	44	42	50	49	43	48
101–200 ..	F	18	13	9	12	14	9	8	16	15	13	10	10
	AT	29	31	40	43	43	33	22	24	27	23	15	20
201–300 ..	F	3	8	10	10	9	7	5	7	5	4	3	5
	AT	11	18	31	31	29	24	14	8	12	10	5	10
301–400 ..	F	4	4	9	7	4	3	4	0	2	2	2	2
	AT	8	10	21	21	20	17	9	1	7	6	..	5
401–500 ..	F	2	3	7	4	5	5	2	0	3	1	..	0
	AT	4	6	12	14	16	14	5	1	5	4	..	3
501–600 ..	F	0	0	3	6	6	2	3	1	1	2	..	3
	AT	2	3	5	10	11	9	..	..	2	3	..	..
601–700 ..	F	1	1	0	1	2	2	..	..	0	0	..	..
	AT	2	3	2	4	5	7	..	..	1	1	..	..
701–800 ..	F	0	0	1	1	1	2	..	..	0	0	..	..
	AT	1	2	2	3	3	5	..	..	1	1	..	..
801–900 ..	F	0	1	1	0	0	1	..	..	0	1	..	..
	AT	1	2	..	2	2	3	..	..	1	..	..	..
901–1000 ..	F	1	1	..	0	0	1	..	..	1	..	..	..
	AT	..	..	..	2	2	2	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	2	1	0	..	..	..	..	..	..
	AT	..	..	..	..	2	1	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	..	1	0	..	..	..	..	..	..
	AT	..	..	..	..	..	1	..	..	..	..	..	..
*													
1501–1600 ..	F	..	..	..	..	..	1	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

There is no record for August, 1946.

CHARLEVILLE (1937).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	196	189	205	208	186	192	148	110	67	72	115	140
0 ..	F	2	0	0	0	4	5	11	9	2	6	10	5
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	30	28	13	17	17	24	23	31	30	30	29	37
	AT	56	58	58	58	54	53	47	49	56	52	48	53
101–200 ..	F	15	11	16	18	11	8	10	10	12	12	13	4
	AT	26	30	45	41	37	29	24	18	26	22	19	16
201–300 ..	F	5	8	12	7	9	7	7	5	7	5	6	5
	AT	11	19	29	23	26	21	14	8	14	10	..	12
301–400 ..	F	5	5	7	6	7	2	6	3	4	2	..	4
	AT	6	11	17	16	17	14	7	..	7	5	..	7
401–500 ..	F	0	4	3	3	3	7	0	..	3	1	..	3
	AT	1	6	10	10	10	12	1	..	..	3	..	..
501–600 ..	F	0	2	4	2	1	1	0	..	..	1	..	..
	AT	1	..	7	7	7	5	1	..	..	2	..	..
601–700 ..	F	0	..	2	1	2	0	1	..	..	0	..	..
	AT	1	..	3	5	6	4	..	..	..	1	..	..
701–800 ..	F	1	..	0	2	1	1	..	..	..	0	..	..
	AT	..	..	1	4	4	4	..	..	..	1	..	..
800–901 ..	F	..	..	0	0	0	0	..	..	..	1	..	..
	AT	..	..	1	2	3	3	..	..	..	..	..	..
901–1000 ..	F	..	..	1	1	0	1	..	..	..	..	..	..
	AT	..	..	..	2	3	3	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	1	2	0	..	..	..	..	..	..
	AT	..	..	..	..	3	2	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	..	0	1	..	..	..	..	..	..
	AT	..	..	..	..	1	2	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	..	0	1	..	..	..	..	..	..
*	AT	..	..	..	..	1	..	..	..	..	..	..	..
1501–1600 ..	F	..	..	..	..	1	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

MORVEN (2222).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	180	176	192	190	170	180	130	102	63	66	105	130
0 ..	F	4	4	1	2	2	3	14	11	5	5	13	9
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	28	20	16	16	20	18	24	24	25	29	25	28
	AT	54	54	57	56	56	55	44	47	53	53	45	49
101–200 ..	F	15	11	12	12	10	12	8	11	16	13	11	7
	AT	26	34	41	40	36	37	20	23	28	24	20	21
201–300 ..	F	4	9	8	6	8	8	5	10	6	6	6	6
	AT	11	23	29	28	26	25	12	12	12	11	9	14
301–400 ..	F	3	6	6	7	3	6	3	2	3	1	2	3
	AT	7	14	21	22	18	17	7	..	6	5	3	8
401–500 ..	F	0	3	7	5	5	3	3	..	0	1	1	4
	AT	4	8	15	15	15	11	4	..	3	4	..	5
501–600 ..	F	2	4	2	3	5	2	1	..	3	1	..	1
	AT	4	5	8	10	10	8	..	..	..	3	..	..
601–700 ..	F	1	1	3	2	0	1	..	..	..	1	..	..
	AT	2	..	6	7	5	6	..	..	..	2	..	..
701–800 ..	F	0	..	1	2	2	3	..	..	..	0	..	..
	AT	1	..	3	5	5	5	..	..	..	1	..	..
801–900 ..	F	0	..	1	0	1	0	..	..	..	0	..	..
	AT	1	..	2	3	3	2	..	..	..	1	..	..
901–1000 ..	F	1	..	0	0	0	1	..	..	..	0	..	..
	AT	..	..	1	3	2	2	..	..	..	1	..	..
1001–1100 ..	F	..	..	0	0	1	1	..	..	..	0	..	..
	AT	..	..	1	3	2	..	..	..	..	1	..	..
1101–1200 ..	F	..	..	1	2	0	..	..	..	..	1	..	..
	AT	..	..	..	3	1	..	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	1	1	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

MUCKADILLA (1924).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	185	178	166	186	166	168	128	102	63	60	102	130
0 ..	F	6	0	1	0	4	5	11	16	5	11	8	8
	AT	57	57	57	56	56	56	56	56	57	57	57	57
1-100 ..	F	21	20	10	11	17	17	24	20	29	19	32	33
	AT	51	57	56	56	52	51	45	40	52	46	49	49
101–200 ..	F	18	13	15	18	7	10	12	10	8	14	12	7
	AT	30	37	46	45	35	34	21	20	23	27	17	16
201–300 ..	F	6	11	8	8	10	10	5	6	9	9	4	5
	AT	12	24	31	27	28	24	9	10	15	13	5	9
301–400 ..	F	2	4	12	9	4	3	1	4	4	1	1	1
	AT	6	13	23	19	18	14	4	..	6	4	..	4
401–500 ..	F	3	5	4	3	4	5	2	..	0	2	..	1
	AT	4	9	11	10	14	11	3	..	2	3	..	3
501–600 ..	F	0	1	3	4	3	1	1	..	1	0	..	0
	AT	1	4	7	7	10	6	..	..	2	1	..	2
601–700 ..	F	0	2	0	0	2	1	..	..	0	0	..	2
	AT	1	3	4	3	7	5	..	..	1	1	..	..
701–800 ..	F	1	1	3	0	2	2	..	..	0	1	..	..
	AT	..	..	4	3	5	4	..	..	1	..	..	..
801–900 ..	F	..	..	0	0	1	0	..	..	0	..	..	..
	AT	..	..	1	3	3	2	..	..	1	..	..	..
901–1000 ..	F	..	..	1	0	0	0	..	..	1	..	..	..
	AT	..	..	..	3	2	2	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	0	0	1	..	..	..	..	..	..
	AT	..	..	..	3	2	2	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	1	0	1	..	..	..	..	..	..
	AT	..	..	..	3	2	..	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	1	0	..	..	..	..	..	..	..
	AT	..	..	..	2	2	..	..	..	..	..	..	..
1301–1400 ..	F	..	..	..	0	1	..	..	..	..	..	..	..
	AT	..	..	..	1	2	..	..	..	..	..	..	..
1401–1500 ..	F	..	..	..	0	1	..	..	..	..	..	..	..
	AT	..	..	..	1	..	..	..	..	..	..	..	..
1701–1800 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

There are no records for January, 1950 to May, 1951.

MITCHELL (2264).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	189	180	191	191	169	166	122	97	59	65	103	130
0 ..	F	1	0	1	1	1	1	4	6	2	4	5	3
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	24	18	11	9	21	18	29	28	28	24	34	34
	AT	57	58	57	57	57	57	54	52	56	54	53	55
101–200 ..	F	16	10	11	20	9	10	14	17	13	16	15	8
	AT	33	40	46	48	36	39	25	24	28	30	19	21
201–300 ..	F	9	12	14	9	8	11	3	3	8	8	1	6
	AT	17	30	35	28	27	29	11	7	15	14	4	13
301–400 ..	F	3	11	9	5	3	6	3	4	5	2	3	4
	AT	8	18	21	19	19	18	8	..	7	6	..	7
401–500 ..	F	2	0	4	5	1	5	3	..	0	2	..	1
	AT	5	7	12	14	16	12	5	..	2	4	..	3
501–600 ..	F	2	3	4	3	4	3	1	..	1	1	..	0
	AT	3	7	8	9	15	7	2	..	2	2	..	2
601–700 ..	F	0	0	1	3	2	2	1	..	0	0	..	2
	AT	1	4	4	6	11	4	..	..	1	1	..	..
701–800 ..	F	0	2	0	0	6	0	..	..	0	0	..	..
	AT	1	4	3	3	9	2	..	..	1	1	..	..
801–900 ..	F	0	2	2	0	0	0	..	..	1	0	..	..
	AT	1	..	3	3	3	2	..	..	..	1	..	..
901–1000 ..	F	1	..	1	0	2	1	..	..	..	0	..	..
	AT	..	..	..	3	3	2	..	..	..	1	..	..
1001–1100 ..	F	..	..	..	2	0	0	..	..	..	0	..	..
	AT	..	..	..	3	1	1	..	..	..	1	..	..
1101–1200 ..	F	..	..	..	1	0	1	..	..	..	0	..	..
*	AT	..	..	..	..	1	..	..	..	..	1	..	..
1401–1500 ..	F	..	..	..	..	0	..	..	..	..	1	..	..
	AT	..	..	..	..	1	..	..	..	..	..	..	..
1501–1600 ..	F	..	..	..	..	1	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

ROMA (2270).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	184	176	184	184	166	175	135	103	65	65	103	126
0 ..	F	1	0	2	0	1	3	9	9	1	4	6	4
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	22	18	7	9	18	16	28	25	30	25	35	35
	AT	57	58	56	58	57	55	49	49	57	54	52	54
101–200 ..	F	16	15	16	18	12	13	8	14	10	15	12	7
	AT	35	40	49	49	39	39	21	24	27	29	17	19
201–300 ..	F	10	10	13	13	6	10	8	5	10	8	3	5
	AT	19	25	33	31	27	26	13	10	17	14	5	12
301–400 ..	F	4	8	8	4	6	6	3	3	5	2	1	3
	AT	9	15	20	18	21	16	5	5	7	6	2	7
401–500 ..	F	4	3	7	5	6	3	0	1	0	1	1	1
	AT	5	7	12	14	15	10	2	2	2	4	..	4
501–600 ..	F	0	0	3	3	2	0	2	0	1	1	..	1
	AT	1	4	5	9	9	7	..	1	2	3	..	3
601–700 ..	F	0	2	1	2	3	1	..	0	0	1	..	1
	AT	1	4	2	6	7	7	..	1	1	2	..	2
701–800 ..	F	0	2	1	0	1	3	..	0	1	0	..	1
	AT	1	..	..	4	4	6	..	1	..	1	..	..
801–900 ..	F	1	..	..	1	2	1	..	1	..	0	..	..
	AT	..	..	..	4	3	3	..	..	..	1	..	..
901–1000 ..	F	..	..	..	1	0	1	..	..	..	1	..	..
	AT	..	..	..	3	1	2	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	1	0	1	..	..	..	..	..	..
	AT	..	..	..	2	1	..	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	1	0	..	..	..	..	..	..	..
	AT	..	..	..	..	1	..	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	..	1	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

SURAT (2268).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	158	151	169	173	155	158	126	103	65	59	92	117
0 ..	F	1	1	2	0	2	2	7	8	1	3	6	1
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	21	25	11	12	18	19	24	26	21	25	33	32
	AT	57	57	56	58	56	56	51	50	57	55	52	57
101–200 ..	F	17	11	9	13	12	9	14	14	18	17	12	15
	AT	36	32	45	46	38	37	27	24	36	30	19	25
201–300 ..	F	12	9	12	14	6	9	9	5	8	6	4	6
	AT	19	21	36	33	26	28	13	10	18	13	7	10
301–400 ..	F	2	3	10	8	2	7	1	3	6	2	1	1
	AT	7	12	24	19	20	19	4	5	10	7	3	4
401–500 ..	F	4	4	8	4	7	4	3	1	3	2	1	1
	AT	5	9	14	11	18	12	..	2	4	5	2	3
501–600 ..	F	0	2	2	2	2	4	..	1	0	0	1	1
	AT	1	5	6	7	11	8	..	..	1	3	..	2
601–700 ..	F	1	1	2	2	3	4	..	..	0	1	..	1
	AT	..	3	4	5	9	..	..	..	1	3	..	..
701–800 ..	F	..	1	0	1	2	..	..	..	0	1	..	..
	AT	..	2	2	3	6	..	..	..	1	2	..	..
801–900 ..	F	..	0	0	0	2	..	..	..	0	1	..	..
	AT	..	1	2	2	4	..	..	..	1	..	..	..
901–1000 ..	F	..	1	1	0	1	..	..	..	1	..	..	..
	AT	..	..	2	2	2	..	..	..	..	..	..	..
1001–1100 ..	F	..	..	1	1	1	..	..	..	..	..	..	..
	AT	..	..	..	2	..	..	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

ST. GEORGE (1940).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	180	173	184	220	186	180	162	113	70	65	103	122
0 ..	F	1	2	1	2	3	2	5	10	2	5	6	4
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	29	25	17	13	25	20	34	25	27	26	34	30
	AT	57	56	57	56	55	56	53	48	56	53	52	54
101–200 ..	F	19	11	14	16	5	12	9	10	13	15	10	14
	AT	28	31	40	43	30	36	19	23	29	27	18	24
201–300 ..	F	5	7	9	10	8	13	5	5	9	8	5	6
	AT	9	20	26	27	25	24	10	13	16	12	8	10
301–400 ..	F	1	6	9	8	7	1	2	6	5	2	3	1
	AT	4	13	17	17	17	11	5	8	7	4	..	4
401–500 ..	F	2	3	3	4	5	4	1	2	0	0	..	2
	AT	3	7	8	9	10	10	3	..	2	2	..	3
501–600 ..	F	0	0	2	3	2	3	1	..	2	0	..	1
	AT	1	4	5	5	5	6	2	..	..	2	..	..
601–700 ..	F	1	2	3	0	0	1	1	..	..	1	..	..
	AT	..	4	..	2	3	3	..	..	..	2	..	..
701–800 ..	F	..	2	..	0	2	1	..	..	..	0	..	..
	AT	..	..	..	2	3	2	..	..	..	1	..	..
801–900 ..	F	..	..	..	1	1	1	..	..	..	1	..	..
	AT	..	..	..	2	..	..	..	..	..	1	..	..
901–1000 ..	F	..	..	..	1	..	..	..	..	..	0	..	..
	AT	..	..	..	..	..	..	..	..	..	1	..	..
1001–1100 ..	F	..	..	..	..	..	..	..	..	..	1	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

CLERMONT (2575).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	215	196	192	172	140	170	150	138	96	96	132	160
0 ..	F	5	3	0	3	0	2	10	8	7	13	18	12
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	23	15	10	5	16	16	21	30	21	24	25	32
	AT	53	55	58	55	58	56	48	50	51	45	40	46
101–200 ..	F	15	15	15	7	7	11	9	11	14	12	10	5
	AT	30	40	48	50	42	40	27	20	30	21	15	14
201–300 ..	F	9	13	9	5	7	10	10	4	5	5	4	3
	AT	15	25	33	43	35	29	18	9	16	9	5	9
301–400 ..	F	2	5	8	8	6	5	6	3	7	1	0	5
	AT	6	12	24	38	28	19	8	5	11	4	1	6
401–500 ..	F	4	2	3	9	3	3	0	0	3	1	1	0
	AT	..	7	16	30	22	14	2	2	4	3	..	1
501–600 ..	F	..	1	6	1	6	4	1	1	0	0	..	0
	AT	..	5	13	21	19	11	2	2	1	2	..	1
601–700 ..	F	..	1	2	6	3	3	1	1	0	1	..	0
	AT	..	4	7	20	13	7	..	..	1	2	..	1
701–800 ..	F	..	1	1	4	2	0	..	..	0	1	..	1
	AT	..	3	5	14	10	4	..	..	1	..	..	..
801–900 ..	F	..	0	1	3	1	2	..	..	0	..	..	..
	AT	..	2	4	10	8	4	..	..	1	..	..	..
901–1000 ..	F	..	1	1	2	0	0	..	..	0	..	..	..
	AT	..	2	3	7	7	2	..	..	1	..	..	..
1001–1100 ..	F	..	1	0	1	1	1	..	..	0	..	..	..
	AT	..	..	2	5	7	2	..	..	1	..	..	..
1101–1200 ..	F	..	..	0	1	1	1	..	..	0	..	..	..
	AT	..	..	2	4	6	..	..	..	1	..	..	..
1201–1300 ..	F	..	..	1	1	1	..	..	..	1	..	..	..
	AT	..	..	2	3	5	..	..	..	..	..	..	..
1301–1400 ..	F	..	..	0	1	2	..	..	..	..	..	..	..
	AT	..	..	1	2	4	..	..	..	..	..	..	..
1401–1500 ..	F	..	..	0	0	1	..	..	..	..	..	..	..
	AT	..	..	1	1	2	..	..	..	..	..	..	..
1601–1700 ..	F	..	..	0	0	1	..	..	..	..	..	..	..
	AT	..	..	1	1	..	..	..	..	..	..	..	..
2001–2100 ..	F	..	..	0	1	..	..	..	..	..	..	..	..
	AT	..	..	1	..	..	..	..	..	..	..	..	..
2601–2700 ..	F	..	..	1	..	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

EMERALD (2488).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	210	184	184	172	152	170	150	144	102	102	132	160
0 ..	F	3	0	0	1	1	1	7	12	6	10	13	9
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	24	15	11	9	12	15	27	23	21	29	28	26
	AT	55	58	58	57	57	57	51	46	52	48	45	49
101–200 ..	F	17	17	11	5	11	12	10	15	15	8	11	14
	AT	31	43	47	48	45	42	24	23	31	19	17	23
201–300 ..	F	4	11	10	10	8	9	6	4	8	4	5	4
	AT	14	26	36	43	34	30	14	8	16	11	6	9
301–400 ..	F	5	3	13	7	3	8	4	3	4	2	1	1
	AT	10	15	26	33	26	21	8	4	8	7	..	5
401–500 ..	F	4	6	5	7	7	4	1	0	2	4	..	2
	AT	5	12	13	26	23	13	4	1	4	5	..	4
501–600 ..	F	0	2	3	2	6	2	2	1	1	0	..	2
	AT	1	6	8	19	16	9	3	..	2	1	..	..
601–700 ..	F	1	1	1	4	2	1	0	..	0	0	..	..
	AT	..	4	5	17	10	7	1	..	1	1	..	..
701–800 ..	F	..	1	1	6	2	3	1	..	0	1	..	..
	AT	..	3	4	13	8	6	..	..	1	..	..	..
801–900 ..	F	..	1	1	3	3	1	..	..	0	..	..	..
	AT	..	2	3	7	6	3	..	..	1	..	..	..
901–1000 ..	F	..	1	0	1	0	1	..	..	0	..	..	..
	AT	..	..	2	4	3	2	..	..	1	..	..	..
1001–1100 ..	F	..	..	1	1	1	1	..	..	0	..	..	..
	AT	..	..	2	3	3	..	..	..	1	..	..	..
1101–1200 ..	F	..	..	1	1	1	..	..	..	1	..	..	..
	AT	..	..	..	2	2	..	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	0	1	..	..	..	..	..	..	..
	AT	..	..	..	1	..	..	..	..	..	..	..	..
2101–2200 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

SPRINGSURE (2785).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	205	184	180	172	156	185	165	162	114	120	150	165
0 ..	F	1	0	1	0	0	1	10	11	5	10	9	6
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	24	14	11	6	13	15	20	24	22	26	27	30
	AT	57	58	57	58	58	57	48	47	53	48	49	52
101–200 ..	F	11	17	8	9	14	14	14	14	11	11	18	10
	AT	33	44	46	52	45	42	28	23	31	22	22	22
201–300 ..	F	10	6	9	10	3	10	6	4	8	4	3	7
	AT	22	27	38	43	31	28	14	9	20	11	4	12
301–400 ..	F	5	8	10	8	9	1	2	3	6	2	1	2
	AT	12	21	29	33	28	18	8	5	12	7	..	5
401–500 ..	F	5	3	5	7	6	8	2	2	4	2	..	1
	AT	7	13	19	25	19	17	6	..	6	5	..	3
501–600 ..	F	1	6	7	6	0	3	2	..	1	2	..	1
	AT	2	10	14	18	13	9	4	..	2	3	..	2
601–700 ..	F	0	2	3	5	3	1	0	..	0	0	..	1
	AT	1	4	7	12	13	6	2	..	1	1	..	..
701–800 ..	F	0	0	0	0	2	2	0	..	0	0	..	..
	AT	1	2	4	7	10	5	2	..	1	1	..	..
801–900 ..	F	0	0	1	2	4	3	0	..	0	0	..	..
	AT	1	2	4	7	8	..	2	..	1	1	..	..
901–1000 ..	F	1	1	2	3	0	..	2	..	0	1	..	..
	AT	..	2	3	5	4	..	..	..	1	..	..	..
1001–1100 ..	F	..	0	0	1	1	..	..	..	0	..	..	..
	AT	..	1	1	2	4	..	..	..	1	..	..	..
1101–1200 ..	F	..	0	1	0	1	..	..	..	1	..	..	..
	AT	..	1	..	1	3	..	..	..	..	..	..	..
1201–1300 ..	F	..	0	..	0	1	..	..	..	..	..	..	..
	AT	..	1	..	1	2	..	..	..	..	..	..	..
*													
1401–1500 ..	F	..	1	..	0	0	..	..	..	..	..	..	..
	AT	..	..	..	1	1	..	..	..	..	..	..	..
1501–1600 ..	F	..	..	..	0	1	..	..	..	..	..	..	..
	AT	..	..	..	1	..	..	..	..	..	..	..	..
*													
3001–3100 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

TAROOM (2671).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	174	155	158	156	124	156	120	104	70	75	155	174
0 ..	F	2	0	0	0	0	1	8	6	5	4	5	6
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	20	10	10	5	13	15	23	28	21	29	34	23
	AT	56	58	58	58	58	57	50	52	53	54	53	52
101–200 ..	F	14	11	6	14	15	14	11	15	15	11	13	14
	AT	36	48	48	53	45	42	27	24	32	25	19	29
201–300 ..	F	10	10	14	4	8	12	8	3	13	10	5	10
	AT	22	37	42	39	30	28	16	9	17	14	6	15
301–400 ..	F	3	12	9	8	6	6	5	2	1	2	1	2
	AT	12	27	28	35	22	16	8	6	4	4	..	5
401–500 ..	F	3	7	8	8	5	3	0	0	2	2	..	2
	AT	9	15	19	27	16	10	3	4	3	..	..	3
501–600 ..	F	3	2	5	9	1	3	1	1	0	..	..	0
	AT	6	8	11	19	11	7	3	4	1	..	..	1
601–700 ..	F	2	3	2	0	1	1	2	2	0	..	..	0
	AT	3	6	6	10	10	4	..	3	1	..	..	1
701–800 ..	F	0	0	2	6	4	2	..	0	0	..	..	1
	AT	1	3	4	10	9	3	..	1	1	..	..	..
801–900 ..	F	1	1	0	0	0	1	..	1	1	..	..	..
	AT	..	3	2	4	5	..	..	..	..	..	..	..
901–1000 ..	F	..	1	0	1	3	..	..	..	..	..	..	..
	AT	..	2	2	4	5	..	..	..	..	..	..	..
1001–1100 ..	F	..	0	1	3	0	..	..	..	..	..	..	..
	AT	..	1	2	..	2	..	..	..	..	..	..	..
1101–1200 ..	F	..	1	1	..	0	..	..	..	..	..	..	..
	AT	..	..	..	..	2	..	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	..	1	..	..	..	..	..	..	..
	AT	..	..	..	..	2	..	..	..	..	..	..	..
1301–1400 ..	F			..	..	1	..	..	..	..	..	..	..
	AT			..	..	..	..	..	..	..	..	..	..

YULEBA (2387).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	171	151	155	155	140	158	117	103	65	70	92	126
0 ..	F	0	1	2	1	1	2	10	10	3	3	7	6
	AT	58	58	58	58	58	58	58	58	58	5°	58	58
1–100 ..	F	22	15	11	7	12	15	20	24	24	25	32	27
	AT	58	57	56	57	57	56	48	48	55	55	51	52
101–200 ..	F	13	13	12	15	15	11	19	12	14	17	14	13
	AT	36	42	45	50	45	41	28	24	31	30	19	25
201–300 ..	F	11	7	10	14	13	8	5	2	8	5	4	6
	AT	23	29	33	35	30	30	9	12	17	13	5	12
301–400 ..	F	6	8	8	7	5	9	2	6	5	5	0	2
	AT	12	22	23	21	17	22	4	10	9	8	1	6
401–500 ..	F	4	3	10	4	1	6	2	2	3	2	1	3
	AT	6	14	15	14	12	13	..	4	4	3	..	4
501–600 ..	F	1	4	3	2	3	3	..	1	0	0	..	0
	AT	2	11	5	10	11	7	..	2	1	1	..	1
601–700 ..	F	0	5	0	4	1	2	..	0	0	0	..	1
	AT	1	7	2	8	8	4	..	1	1	1	..	..
701–800 ..	F	1	1	1	0	3	2	..	1	1	0	..	..
	AT	..	2	2	4	7	..	..	..	..	1	..	..
801–900 ..	F	..	1	1	2	1	..	..	..	..	1	..	..
	AT	..	..	..	4	4	..	..	..	..	..	..	..
901–1000 ..	F	..	..	..	1	1	..	..	..	..	..	..	..
	AT	..	..	..	2	3	..	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	0	0	..	..	..	..	..	..	..
	AT	..	..	..	1	2	..	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	0	1	..	..	..	..	..	..	..
	AT	..	..	..	1	2	..	..	..	..	..	..	..
1201–1300 ..	F	..	..	..	0	1	..	..	..	..	..	..	..
*	AT	..	..	..	1	..	..	..	..	..	..	..	..
1501–1600 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

MILES (2610).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	162	148	155	151	130	144	112	97	65	70	97	122
0 ..	F	0	1	0	0	0	1	4	7	3	1	6	2
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	19	12	10	6	10	17	25	26	20	26	29	32
	AT	58	57	58	58	58	57	54	51	55	57	52	56
101–200 ..	F	12	14	9	9	21	12	12	13	17	17	16	11
	AT	39	45	48	52	48	40	29	25	35	31	23	24
201–300 ..	F	16	9	15	13	4	8	11	4	11	8	5	7
	AT	27	31	39	43	27	28	17	12	18	14	7	13
301–400 ..	F	6	8	5	10	11	7	2	5	3	4	1	5
	AT	11	22	24	30	23	20	6	8	7	6	2	6
401–500 ..	F	1	7	4	6	3	6	4	0	2	2	1	0
	AT	5	14	19	20	12	13	..	3	4	..	..	1
501–600 ..	F	2	3	6	4	3	4	..	1	1	..	..	1
	AT	4	7	15	14	9	7	..	3	2	..	..	..
601–700 ..	F	1	1	4	3	0	3	..	1	0	..	..	..
	AT	2	4	9	10	6	..	..	2	1	..	..	..
701–800 ..	F	1	1	3	3	2	..	..	1	1	..	..	..
	AT	..	3	5	7	6	..	..	..	..	..	..	..
801–900 ..	F	..	0	1	2	3	..	..	..	..	..	..	..
	AT	..	2	2	4	4	..	..	..	..	..	..	..
901–1000 ..	F	..	1	0	1	1	..	..	..	..	..	..	..
	AT	..	2	1	2	..	..	..	..	..	..	..	..
1001–1100 ..	F	..	1	1	0	..	..	..	..	..	..	..	..
	AT	..	..	..	1	..	..	..	..	..	..	..	..
*													
1201–1300 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

DALBY (2733).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	187	176	176	172	159	176	143	112	79	79	119	143
0 ..	F	1	0	0	0	1	0	3	5	2	2	2	0
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	14	11	5	7	14	16	24	29	22	20	32	25
	AT	57	58	58	58	57	58	55	53	56	56	56	58
101–200 ..	F	17	9	13	9	14	9	16	11	16	21	17	19
	AT	43	47	53	51	43	42	31	24	34	36	24	33
201–300 ..	F	12	13	13	9	10	7	8	10	9	9	5	8
	AT	26	38	40	42	29	33	15	13	18	15	7	14
301–400 ..	F	7	7	8	12	6	11	4	1	4	4	2	5
	AT	14	25	27	33	19	26	7	3	9	7	..	6
401–500 ..	F	3	7	5	7	5	9	1	1	3	3	..	0
	AT	7	18	19	21	13	15	3	2	5	..	..	1
501–600 ..	F	2	3	7	6	2	3	2	1	2	..	..	1
	AT	4	11	14	14	8	6	..	..	..	..	..	..
601–700 ..	F	2	2	1	3	3	2	..	..	..	..	..	..
	AT	..	8	7	8	6	3	..	..	..	..	..	..
701–800 ..	F	..	5	2	2	1	1	..	..	..	..	..	..
	AT	..	6	6	5	3	..	..	..	..	..	..	..
801–900 ..	F	..	0	2	2	1	..	..	..	..	..	..	..
	AT	..	1	4	3	2	..	..	..	..	..	..	..
901–1000 ..	F	..	1	2	0	1	..	..	..	..	..	..	..
	AT	..	..	..	1	..	..	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

GOONDIWINDI (2266).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	158	155	176	169	151	162	117	92	59	59	86	112
0 ..	F	0	0	1	0	1	2	3	2	1	2	1	2
	AT	58	58	57	58	58	58	58	58	58	58	58	58
1–100 ..	F	21	17	9	10	15	18	29	25	23	23	29	22
	AT	58	58	56	58	57	56	55	56	57	56	57	58
101–200 ..	F	18	14	10	15	18	14	14	19	16	15	19	20
	AT	37	41	47	48	42	38	26	31	34	33	28	34
201–300 ..	F	12	9	13	9	7	6	8	6	8	11	6	7
	AT	19	27	37	33	24	24	12	12	18	18	9	14
301–400 ..	F	4	8	7	8	7	6	3	2	3	3	1	4
	AT	7	18	24	24	17	18	4	6	10	7	3	7
401–500 ..	F	2	3	6	4	6	6	0	0	5	2	2	3
	AT	3	10	17	16	10	12	1	4	7	4	..	..
501–600 ..	F	1	2	7	5	2	2	0	2	1	1	..	..
	AT	..	7	11	12	4	6	1	4	2	2	..	..
601–700 ..	F	..	2	2	3	2	1	1	1	1	1	..	..
	AT	..	5	4	7	..	4	..	2	..	..	..	..
701–800 ..	F	..	0	1	2	..	2	..	1	..	..	..	..
	AT	..	3	2	4	..	3	..	..	..	..	..	..
801–900 ..	F	..	2	0	1	..	1	..	..	..	..	..	..
	AT	..	3	1	2	..	..	..	..	..	..	..	..
901–1000 ..	F	..	1	0	1	..	..	..	..	..	..	..	..
	AT	..	..	1	..	..	..	..	..	..	..	..	..
1001–1100 ..	F	..	..	1	..	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

PITTSWORTH (2802).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	160	145	141	141	132	154	132	112	79	79	106	121
0 ..	F	0	0	0	0	0	2	1	1	0	1	1	1
	AT	57	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	8	10	6	4	12	13	31	24	22	19	36	21
	AT	57	58	58	58	58	56	57	57	58	57	57	57
101–200 ..	F	16	13	10	10	16	15	9	17	17	18	13	21
	AT	49	48	52	54	46	43	26	33	35	38	21	36
201–300 ..	F	17	9	12	8	8	10	7	12	9	12	5	9
	AT	33	35	42	44	30	28	17	16	19	20	8	15
301–400 ..	F	10	14	5	12	10	6	6	3	2	5	1	5
	AT	16	26	30	36	22	18	10	4	10	8	3	6
401–500 ..	F	4	4	7	5	4	6	2	0	2	2	2	0
	AT	6	12	25	24	12	12	4	1	8	3	..	1
501–600 ..	F	0	5	7	8	5	4	2	0	5	1	..	1
	AT	2	8	18	19	8	6	..	1	6	..	..	..
601–700 ..	F	0	2	7	4	2	1	..	0	1	..	..	..
	AT	2	3	11	11	3	2	..	1	..	..	..	..
701–800 ..	F	1	1	2	2	1	1	..	1	..	..	..	..
	AT	2	..	4	7	..	..	..	..	..	..	..	..
801–900 ..	F	0	..	2	3	..	..	..	..	..	..	..	..
	AT	1	..	..	5	..	..	..	..	..	..	..	..
901–1000 ..	F	1	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	2	..	..	..	..	..	..	..	..
1001–1100 ..	F	..	..	..	1	..	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

WARWICK (2952).

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	149	132	150	141	128	143	105	62	59	59	86	104
0 ..	F	0	0	0	0	0	2	4	2	2	1	1	0
	AT	58	58	58	58	58	58	58	58	58	58	58	58
1–100 ..	F	13	7	7	5	13	14	26	29	24	21	29	18
	AT	58	58	58	58	58	56	54	56	56	57	57	58
101–200 ..	F	9	12	4	10	13	14	14	13	13	19	16	21
	AT	45	51	51	53	45	42	28	27	32	36	28	40
201–300 ..	F	22	15	14	13	17	8	9	7	9	8	7	11
	AT	36	39	47	43	32	28	14	14	19	17	12	19
301–400 ..	F	9	9	17	11	5	7	2	5	5	7	4	5
	AT	14	24	33	30	15	20	5	7	10	9	5	8
401–500 ..	F	1	9	6	5	3	3	3	1	3	0	0	2
	AT	5	15	16	19	10	13	..	2	5	2	1	3
501–600 ..	F	2	6	3	3	3	5	..	0	0	1	1	0
	AT	4	..	10	14	7	10	..	1	2	2	..	1
601–700 ..	F	1	..	3	5	1	4	..	0	1	1	..	1
	AT	2	..	7	11	4	5	..	1	2	..	..	..
701–800 ..	F	1	..	1	3	1	0	..	0	0	..	..	..
	AT	..	..	4	6	3	1	..	1	1	..	..	..
801–900 ..	F	..	..	0	1	1	1	..	1	1	..	..	..
	AT	..	..	3	3	2	..	..	..	..	..	..	..
901–1000 ..	F	..	..	2	1	0	..	..	..	..	..	..	..
	AT	..	..	3	2	1	..	..	..	..	..	..	..
1001–1100 ..	F	..	..	1	0	0	..	..	..	..	..	..	..
	AT	..	..	..	1	1	..	..	..	..	..	..	..
1101–1200 ..	F	..	..	..	1	1	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

TALWOOD (2051) 1914–1951.

Points of Rainfall.	Factor.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
	E	168	164	180	192	168	178	120	96	66	60	90	118
0 ..	F	1	4	4	2	3	4	7	4	1	6	7	7
	AT	38	38	38	38	37	38	38	37	38	38	38	38
1–100 ..	F	15	6	5	7	13	15	16	17	17	14	17	14
	AT	37	34	34	36	34	34	31	33	37	32	31	31
101–200 ..	F	11	11	12	7	4	4	9	9	10	8	8	9
	AT	22	28	29	29	21	19	15	16	20	18	14	17
201–300 ..	F	5	9	4	11	4	5	5	2	5	7	4	7
	AT	11	17	17	22	17	15	6	8	10	10	6	8
301–400 ..	F	3	4	6	5	5	3	0	2	3	0	2	0
	AT	6	8	13	11	13	10	1	6	5	3	..	1
401–500 ..	F	1	1	3	1	2	3	0	3	1	1	..	1
	AT	3	4	7	6	8	7	1	4	2	3	..	..
501–600 ..	F	2	1	1	1	3	0	0	1	0	1	..	..
	AT	..	3	4	5	6	4	1	..	1	2	..	..
601–700 ..	F	..	1	3	2	0	1	1	..	1	0	..	..
	AT	..	2	..	4	3	4	..	..	..	1	..	..
701–800 ..	F	..	0	..	1	0	3	..	..	..	0	..	..
	AT	..	1	..	2	3	..	..	..	..	1	..	..
801–900 ..	F	..	1	..	1	2	..	..	..	..	1	..	..
	AT	..	..	..	..	3	..	..	..	..	..	..	..
901–1000 ..	F	..	..	..	..	1	..	..	..	..	..	..	..
	AT	..	..	..	..	..	..	..	..	..	..	..	..

There are no records for May, 1950 and February, 1951.

Table 5.

FREQUENCY OF GROWING PERIODS EXPERIENCED DURING 58 YEARS (1894–1951).

Station.	Length of Growing Season in Months.																						
	Summer.						Winter.						Overlapping.										
	1	2	3	4	5	6	1	2	3	4	5	6	2	3	4	5	6	7	8	9	10	11	12	18
Urandangie	32	12	4	..	..	..	17	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Boulia	41	7	1	..	1	..	20	3	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Windorah	39	4	2	..	..	..	30	7	..	..	..	..	2	1	2	..	..	..	..	..	..	..	..	..
South Comongin	39	5	1	..	..	..	39	8	2	..	..	..	2	2	1	..	..	..	..	1	..	..	..	..
Thargomindah	26	6	1	..	..	..	34	11	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Eulo	35	8	2	..	..	..	41	16	1	..	..	..	..	1	1	1	..	1	..	..	..	..	..	..
Camooweal	46	9	13	6	..	..	18	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Kynuna	39	14	8	1	3	..	29	2	..	..	..	..	2	..	2	..	..	..	..	..	..	..	..	..
Winton	37	16	9	..	1	..	31	5	..	..	..	..	1	1	1	..	..	..	1	..	..	..	..	..
Longreach	43	12	5	4	1	..	33	12	..	..	..	..	3	2	..	1	..	..	1	..	..	..	..	..
Jundah	34	15	2	..	..	..	27	7	1	1	..	..	1	5	..	..	..	..	..	..	..	..	..	..
Adavale	46	8	1	1	..	..	37	14	2	..	..	..	3	4	2	1	1	..	..	..	..	..	..	..
Cunnamulla	46	6	2	1	..	..	46	16	5	1	..	..	1	4	1	..	1	..	..	..	..	..	..	..
Cloncurry	41	19	11	2	1	..	20	..	..	..	..	..	2	1	..	1	..	..	..	..	..	..	..	..
Richmond	32	15	11	4	4	..	20	3	..	..	..	..	1	2	1	2	1	..	..	..	..	..	..	..
Hughenden	29	18	16	4	3	..	28	8	..	..	..	..	..	2	2	..	1	..	..	..	..	..	..	..
Aramac	53	19	2	1	1	..	34	13	1	..	..	..	..	1	1	3	2	1	..	..	..	..	..	..
Isisford	38	19	4	2	1	..	34	8	1	1	..	..	2	2	2	1	..	1	..	..	..	..	..	..
Bollon	34	18	5	3	..	..	35	21	8	3	2	..	1	4	3	1	3	2	..	..	..	..	..	..
Dirranbandi	40	22	4	..	2	..	34	16	13	2	1	..	1	6	5	1	..	1	..	..	..	..	..	..
Barcaldine	44	16	10	3	..	1	41	12	4	..	..	..	3	1	..	1	..	..	2	..	..	..	..	..
Alpha	44	23	8	3	2	1	35	20	3	..	..	..	3	2	1	2	1	2	1	..	..	..	..	..
Blackall	43	21	6	3	..	1	40	13	3	..	1	..	5	2	2	2	1	1	..	..	..	..	..	..
Tambo	39	21	6	5	3	1	30	15	5	2	..	1	4	3	3	..	4	2	..	..	..	..	2	..
Augathella	36	22	5	5	2	..	37	15	10	..	1	..	2	4	1	2	4	2	..	..	..	..	..	..
Charleville	41	16	5	3	1	1	36	21	2	4	1	..	3	..	2	1	3	1	..	..	..	..	..	..

Morven	42	18	7	3	2	..	39	15	10	3	2	..	5	3	2	2	4	1	..	..	..	..	..	..
Muckadilla	32	25	4	7	3	..	31	17	12	2	..	..	2	2	1	5	3	1	..	..	..	..	..	..
Mitchell	29	26	4	7	3	..	27	19	10	3	..	..	3	5	1	2	6	3	..	..	1	..	..	..
Roma	33	22	8	5	3	1	25	22	6	5	..	..	6	3	1	3	5	2	1	..	..	..	..	..
Surat..	31	24	6	6	1	1	29	14	13	5	1	..	4	4	2	3	4	2	1	1	..	1	..	..
St. George	39	20	4	1	3	..	40	11	8	3	2	..	..	5	3	3	2	1	..	1	..	..	..	..
Clermont	31	16	16	4	2	2	30	15	3	2	..	..	6	3	4	1	4	1	1	..	..	..	..	..
Emerald	38	17	13	6	1	2	39	17	4	1	..	..	2	..	..	..	7	3	..	..	..	..	..	..
Springsure	28	21	10	12	2	1	36	18	3	..	1	..	2	3	2	1	5	1	1	..	..	..	..	..
Taroom	16	14	9	7	10	1	29	21	5	2	..	..	3	4	6	4	4	6	1	1	..	..	..	..
Yuleba	17	19	9	3	9	2	35	16	10	4	..	..	5	3	3	7	3	2	1	2	..	1	..	..
Miles	22	13	14	7	6	2	34	14	8	4	1	..	3	1	6	2	6	5	2	2	1	1	..	..
Dalby	24	20	13	5	3	1	34	13	12	5	..	..	2	1	6	5	6	2	2	1	1	..	..	..
Goondiwindi	32	17	8	4	1	1	31	13	11	7	3	..	2	10	..	7	4	4	4	1	..	..	..	..
Pittsworth	13	15	7	6	4	2	31	14	6	5	2	..	5	..	2	7	8	6	2	3	4	..	..	..
Warwick	15	12	10	1	4	1	21	12	10	6	2	2	3	2	2	9	6	4	2	5	4	1	1	1

Table 6.

FREQUENCY OF DRY PERIODS EXPERIENCED DURING 58 YEARS (1894–1951).

F = Frequency of droughts more than 4 months in duration.
N = Number of droughts of each particular duration.

Droughts Started.	URANDANGIE. Length in Months.									BOULIA. Length in Months.									WINDORAH. Length in Months.								
	1	2-4	5-7	8-10	11-13	14-16	17-19	>19	F	1	2-4	5-7	8-10	11-13	14-16	17-19	>19	F	1	2-4	5-7	8-10	11-13	14-16	17-19	>19	F
October ..	..	..	..	..	..	1	..	..	1	..	1	..	1	..	..	..	..	1	1	3	..	2	..	1	..	..	3
November ..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	2	..	..	2	2	2	..	..	..	..	..	..	0
December ..	..	2	..	..	..	..	..	..	0	2	3	1	..	1	..	..	..	2	3	2	1	..	..	..	..	..	1
January ..	5	..	1	..	2	..	..	..	3	1	..	2	1	2	..	..	..	5	2	2	3	..	1	..	..	..	4
February ..	1	1	..	..	2	..	..	..	2	2	..	1	..	1	1	..	1	4	3	1	..	1	1	..	..	..	2
March ..	1	7	2	5	3	..	..	4	14	4	3	1	4	2	1	..	1	9	1	5	1	3	1	2	..	1	8
April ..	1	4	..	2	1	..	1	2	6	2	2	2	2	1	..	2	1	8	..	3	1	..	1	1	..	1	4
May ..	..	..	1	..	..	..	..	1	2	..	2	1	3	..	..	..	..	4	3	1	..	1	1	..	..	..	2
June ..	..	..	1	1	1	..	..	..	3	..	1	..	1	..	..	..	1	2	..	2	1	1	..	..	..	1	3
July ..	..	..	5	..	..	..	2	..	7	..	1	3	..	..	1	1	..	5	1	4	4	2	..	..	..	2	8
August ..	..	1	3	2	..	..	..	..	5	..	3	3	1	..	..	..	..	4	..	4	3	1	1	1	..	1	7
September ..	..	..	..	..	..	..	..	..	0	..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	0
N	8	15	13	10	9	1	4	7	44	11	17	14	13	7	5	4	4	47	16	30	14	11	6	5	..	6	42

Droughts Finished.	URANDANGIE. Length in Months.									BOULIA. Length in Months.									WINDORAH. Length in Months.								
	1	2-4	5-7	8-10	11-13	14-16	17-19	>19	F	1	2-4	5-7	8-10	11-13	14-16	17-19	>19	F	1	2-4	5-7	8-10	11-13	14-16	17-19	>19	F
October ..	..	..	2	..	..	..	..	..	2	..	2	1	..	..	1	..	..	2	..	5	1	1	..	..	..	..	2
November ..	..	..	..	1	..	..	1	..	2	..	3	1	2	..	..	2	..	5	1	..	..	2	..	1	..	1	4
December ..	..	1	4	2	1	1	2	1	11	..	..	2	3	1	..	1	1	8	2	2	2	..	1	1	..	..	4
January ..	..	..	2	4	1	..	..	2	9	2	..	1	3	1	1	..	..	6	3	2	1	1	..	..	..	1	3
February ..	5	2	4	1	4	..	..	3	12	1	3	3	2	4	1	1	1	12	2	3	4	2	1	..	..	3	10
March ..	1	..	..	..	2	..	..	1	3	2	2	1	1	1	..	..	1	4	3	3	1	..	1	..	..	..	2
April ..	1	..	..	1	..	..	..	..	1	4	..	..	..	..	1	..	..	1	1	..	..	..	1	..	..	..	1
May ..	1	1	..	..	..	..	1	..	1	2	1	..	..	..	..	..	1	1	..	3	..	2	1	..	..	..	3
June ..	..	5	1	1	1	..	..	..	3	..	3	3	1	..	..	..	..	4	3	5	4	2	..	1	..	1	8
July.. ..	..	5	..	..	..	..	..	..	0	..	2	1	1	..	1	..	..	3	..	3	..	1	..	2	..	..	3
August ..	..	1	..	..	..	..	..	..	0	..	..	1	..	..	..	..	..	1	1	..	..	..	1	..	..	..	1
September ..	..	..	..	..	..	..	..	..	0	..	1	..	..	..	..	..	..	0	..	4	1	..	..	..	..	..	1

Droughts Started.	THARGOMINDAH. Length in Months.									EULO. Length in Months.								CAMOOWEAL. Length in Months.					
	1	2-4	5-7	8-10	11-13	14-16	17-19	>19	F	1	2-4	5-7	8-10	11-13	14-16	20	F	1	2-4	5-7	8-10	11-12	F
Oct. ..	..	4	1	1	..	..	1	1	4	1	7	..	3	..	..	..	3	..	1	..	..	..	0
Nov...	1	1	1	..	..	..	..	..	1	..	..	1	1	..	1	..	3	..	1	1	..	..	1
Dec.	1	1	2	..	..	..	..	..	2	1	3	2	..	1	..	..	3	4	2	..	..	1	1
Jan. ..	1	2	3	1	1	1	1	..	7	2	2	3	..	1	..	..	4	7	1	1	..	..	1
Feb...	1	2	..	..	1	..	..	..	1	3	2	1	..	1	..	..	2	2	2	1	1	2	4
Mar...	1	4	..	2	..	..	..	..	2	1	9	1	1	..	1	..	3	1	6	3	15	3	21
April..	2	1	2	..	2	..	..	..	4	3	1	1	1	1	..	..	3	2	3	4	10	1	15
May ..	2	1	1	..	..	..	..	..	1	3	2	..	2	..	..	1	3	..	..	1	1	..	2
June..	1	2	2	..	1	..	..	1	4	1	..	..	..	2	..	..	2	..	..	1	1	..	2
July	3	2	5	1	2	1	1	..	10	4	8	3	2	2	..	..	7	..	2	8	..	..	8
Aug...	2	3	1	..	..	..	2	..	3	4	4	4	1	1	..	1	7	..	2	2	..	..	2
Sept...	..	..	..	2	..	1	..	2	5	..	1	3	1	..	1	..	5	..	..	..	..	..	0
N ..	15	23	18	7	7	3	5	4	44	23	39	19	12	9	3	2	45	16	20	22	28	7	57

Droughts Finished.	Length in Months.									Length in Months.								Length in Months.					
	1	2-4	5-7	8-10	11-13	14-16	17-19	>19	F	1	2-4	5-7	8-10	11-13	14-16	20	F	1	2-4	5-7	8-10	11-12	F
Oct. ..	..	2	1	1	..	..	..	..	2	..	5	1	..	..	..	..	1	..	..	3	..	..	3
Nov...	..	2	..	2	..	..	..	..	2	1	5	..	1	..	..	..	1	..	3	3	1	..	4
Dec.	1	3	4	..	..	1	..	..	5	..	3	1	1	2	1	..	5	..	1	7	15	1	23
Jan. ..	1	1	2	..	1	..	2	..	5	1	2	..	2	..	..	1	3	4	..	2	8	1	11
Feb.	1	3	2	..	..	..	1	..	3	2	6	7	..	..	1	..	8	7	3	3	4	4	11
Mar...	1	1	..	..	1	..	..	1	2	3	1	1	..	1	..	..	2	2	2	..	..	1	1
April..	1	2	1	..	..	..	1	..	2	1	2	1	1	..	..	1	3	1	..	..	..	..	0
May ..	2	1	..	1	3	1	..	..	5	3	2	1	1	2	..	..	4	2	..	..	..	..	0
June..	2	5	5	2	2	..	..	2	11	3	6	5	4	2	1	..	12	..	8	2	..	..	2
July	1	1	1	1	..	..	..	1	3	1	5	1	1	1	..	..	3	..	3	1	..	..	1
Aug...	3	..	..	..	..	..	1	..	1	4	..	..	..	..	..	..	0	..	..	..	..	..	0
Sept...	2	2	2	..	..	1	..	..	3	4	2	1	1	1	..	..	3	..	..	1	..	..	1

Droughts Started.	KYNUNA. Length in Months.								WINTON. Length in Months.							
	1	2-4	5-7	8-10	11-13	17-19	22	F	1	2-4	5-7	8-10	11-13	14-16	17-19	22	F
October	1	2	..	..	..	..	..	0	..	1	1	..	..	1	..	..	2
November	..	..	..	..	..	1	..	1	2	2	..	..	..	..	..	..	0
December	4	3	..	..	..	..	..	0	3	2	..	..	..	..	..	..	0
January	4	1	..	..	1	..	..	1	4	1	1	..	..	..	..	..	1
February	2	2	2	1	4	..	..	7	2	2	1	2	3	..	..	1	7
March	2	12	1	10	2	..	..	13	..	14	1	4	1	..	..	..	6
April	1	5	2	4	..	..	1	7	3	4	3	5	1	..	1	..	10
May	1	1	3	1	..	..	..	4	2	..	1	1	..	..	..	..	2
June	3	..	2	1	..	..	..	3	3	1	4	1	..	..	1	..	6
July	..	..	10	..	..	..	..	10	..	3	4	1	..	..	..	..	5
August	..	6	3	1	..	..	..	4	..	5	9	1	..	..	..	..	10
September	..	1	1	..	..	..	..	1	..	..	..	..	..	..	..	..	0
N	18	33	24	18	7	1	1	51	19	35	25	15	5	1	2	1	49

Droughts Finished.	KYNUNA. Length in Months.								WINTON. Length in Months.							
	1	2-4	5-7	8-10	11-13	17-19	22	F	1	2-4	5-7	8-10	11-13	14-16	17-19	22	F
October	..	..	1	1	..	..	..	2	..	3	1	1	..	..	..	..	2
November	1	4	2	3	..	..	..	5	..	6	2	1	..	..	..	..	3
December	..	5	4	5	..	..	..	9	2	..	2	4	..	..	..	1	7
January	4	..	8	7	4	..	..	19	3	2	9	5	1	..	1	..	16
February	4	3	5	1	2	..	1	9	4	2	6	2	3	1	..	..	12
March	2	1	1	..	1	..	..	2	2	2	1	..	..	..	..	..	1
April	2	..	..	..	..	..	..	0	..	2	..	..	..	..	..	..	0
May	1	4	..	..	..	1	..	1	3	4	..	1	1	..	..	..	2
June	1	11	..	1	..	..	..	1	2	7	1	1	..	..	..	..	2
July	3	3	1	..	..	..	..	1	3	7	1	..	..	..	..	..	1
August	..	2	..	..	..	..	..	0	..	..	1	..	..	..	..	..	1
September	..	..	2	..	..	..	..	2	..	..	1	..	..	..	1	..	2

Droughts Started.	LONGREACH. Length in Months.									JUNDAH. Length in Months.								
	1	2-4	5-7	8-10	11-13	14-16	17-19	21	F	1	2-4	5-7	8-10	11-13	14-16	17-19	>19	F
October ..	1	3	1	..	..	1	..	..	2	1	3	..	..	..	1	..	1	2
November ..	2	3	1	..	..	..	..	..	1	1	4	..	1	..	..	..	..	1
December ..	2	3	..	..	..	..	..	..	0	1	2	1	1	..	..	..	..	2
January ..	7	1	2	..	1	..	..	..	3	2	..	1	..	..	..	..	..	1
February ..	3	5	1	..	1	..	..	..	2	5	1	..	..	2	..	..	..	2
March	5	10	1	2	2	..	..	..	5	2	3	1	3	3	2	..	..	9
April	2	3	6	1	1	..	..	..	8	4	6	3	2	1	..	..	1	7
May	4	1	2	3	..	..	..	..	5	2	1	..	..	1	..	..	..	1
June	3	2	2	1	..	..	..	1	4	1	4	1	1	1	..	..	..	3
July	1	5	2	..	..	..	1	..	3	1	1	3	1	..	..	1	1	6
August	..	7	7	2	1	..	..	..	10	1	5	6	1	..	1	..	..	8
September ..	..	2	..	..	..	..	..	..	0	..	..	1	..	..	..	..	..	1
N	30	45	25	9	6	1	1	1	43	21	30	17	10	8	4	1	3	43

Droughts Finished.	Length in Months.									Length in Months.								
	1	2-4	5-7	8-10	11-13	14-16	17-19	21	F	1	2-4	5-7	8-10	11-13	14-16	17-19	>19	F
October ..	..	6	3	..	..	..	..	..	3	..	6	1	1	..	..	..	..	2
November ..	1	6	4	..	..	..	..	..	4	1	1	1	..	..	1	..	..	2
December ..	2	5	2	1	1	1	1	..	6	1	1	2	2	..	1	..	..	5
January ..	2	2	5	4	..	..	..	..	9	1	1	4	3	..	..	..	2	9
February ..	7	4	2	2	2	..	..	..	6	2	5	3	1	4	..	1	..	9
March	3	3	2	..	1	..	..	1	4	5	2	2	..	2	..	..	..	4
April	5	..	1	1	1	..	..	..	3	2	..	..	..	..	..	..	..	0
May	2	4	..	..	..	..	..	..	0	4	2	..	1	1	..	..	..	2
June	4	9	2	1	..	..	..	..	3	2	6	2	1	1	..	..	..	4
July	3	4	..	..	1	..	..	..	1	1	3	..	..	..	2	..	1	3
August	1	2	1	..	..	..	..	..	1	1	..	..	1	..	..	..	..	1
September ..	..	..	3	..	..	..	..	..	3	1	3	2	..	..	..	..	..	2

Droughts Started.	ADAVALE. Length in Months.									CUNNAMULLA. Length in Months.						
	1	2-4	5-7	8-10	11-13	14-16	17-19	21	F	1	2-4	5-7	8-10	11-13	17	F
October ..	3	4	..	1	..	..	..	..	1	2	4	..	3	..	..	3
November ..	1	2	1	..	..	..	..	..	1	..	..	1	..	..	..	1
December ..	2	4	1	..	..	..	..	..	1	2	3	4	..	1	..	5
January ..	5	6	4	..	1	..	..	..	5	5	3	3	1	..	1	5
February ..	4	3	..	..	2	..	..	..	2	3	5	..	..	..	..	0
March ..	1	7	..	3	2	..	..	..	5	2	12	..	1	1	..	2
April ..	..	8	2	2	1	..	..	..	5	5	4	1	..	..	..	1
May ..	5	1	..	1	..	..	..	..	1	5	1	..	1	1	..	2
June ..	3	2	2	1	..	..	..	..	3	3	1	2	3	..	..	5
July ..	2	3	9	1	1	1	..	..	12	3	6	7	1	1	..	9
August ..	6	6	2	1	..	..	1	1	5	6	9	5	1	..	..	6
September ..	..	..	2	1	..	..	..	..	3	..	4	2	1	1	..	4
N	32	46	23	11	7	1	1	1	44	36	52	25	12	5	1	43

Droughts Finished.	Length in Months.									Length in Months.						
	1	2-4	5-7	8-10	11-13	14-16	17-19	21	F	1	2-4	5-7	8-10	11-13	17	F
October ..	..	4	..	..	..	..	..	..	0	..	2	..	..	..	..	0
November ..	3	2	..	2	..	..	..	..	2	2	7	1	1	..	..	2
December ..	1	6	7	1	..	..	..	..	8	..	7	4	..	..	..	4
January ..	2	1	5	3	..	..	1	..	9	2	2	2	2	1	..	5
February ..	5	4	2	1	4	..	..	..	7	5	5	8	2	1	..	11
March ..	4	4	1	..	1	..	..	..	2	3	2	1	..	..	..	1
April ..	1	4	1	..	..	..	..	..	1	2	3	..	3	..	..	3
May ..	..	5	..	1	1	..	..	1	3	5	7	..	1	..	..	1
June ..	5	11	5	2	1	..	..	..	8	5	10	7	2	1	1	11
July ..	3	3	..	1	..	..	..	..	1	3	3	1	1	1	..	3
August ..	2	..	..	..	..	..	..	..	0	3	..	..	..	1	..	1
September ..	6	2	2	..	..	1	..	..	3	6	4	1	..	..	..	1

Droughts Started.	CLONCURRY. Length in Months.								RICHMOND. Length in Months.						HUGHENDEN. Length in Months.						
	1	2-4	5-7	8-10	11-13	14-16	22	F	1	2-4	5-7	8-10	11-13	F	1	2-4	5-7	8-10	11-13	17	F
October	..	2	..	..	..	..	..	0	..	2	..	..	..	0	3	3	..	..	..	..	0
November	1	..	..	..	1	..	..	1	1	..	..	..	1	1	..	2	..	..	1	..	1
December	6	4	..	..	..	..	..	0	4	..	..	..	..	0	5	2	..	..	..	..	0
January	4	2	..	..	2	..	..	2	8	..	..	..	2	2	8	1	..	..	..	..	0
February	6	1	1	2	..	..	..	3	2	2	1	4	2	7	2	3	1	3	..	..	4
March	1	6	4	11	2	1	1	19	3	8	1	8	2	11	3	7	3	7	2	..	12
April	..	4	3	11	..	..	..	14	1	4	3	9	..	12	2	9	3	6	..	1	10
May	1	1	2	1	..	..	..	3	2	1	4	1	..	5	2	3	..	3	..	..	3
June	1	..	3	..	..	..	..	3	1	1	4	..	..	4	1	1	3	1	..	..	4
July	..	3	4	..	..	..	..	4	..	2	7	..	..	7	..	1	7	..	..	..	7
August	..	3	2	..	..	..	..	2	..	3	3	..	..	3	..	8	4	..	..	..	4
September	..	1	1	..	..	..	..	1	..	..	..	..	..	0	..	2	..	..	..	..	0
N	20	27	20	25	5	1	1	52	22	23	23	22	7	52	26	42	21	20	3	1	45

Droughts Finished.	CLONCURRY. Length in Months.								RICHMOND. Length in Months.						HUGHENDEN. Length in Months.						
	1	2-4	5-7	8-10	11-13	14-16	22	F	1	2-4	5-7	8-10	11-13	F	1	2-4	5-7	8-10	11-13	17	F
October	..	..	3	..	..	..	..	3	..	1	3	..	..	3	..	3	2	1	1	..	4
November	..	4	4	3	..	..	..	7	..	3	5	2	1	8	3	4	3	..	..	..	3
December	1	4	2	11	1	..	..	14	1	3	6	10	1	17	..	5	7	8	..	..	15
January	6	1	5	10	2	..	1	18	4	..	5	9	2	16	5	5	5	10	..	..	15
February	4	4	3	..	2	..	..	5	8	1	3	1	3	7	8	2	..	1	2	..	3
March	6	1	..	1	..	..	..	1	2	..	..	..	..	0	2	..	..	..	..	..	0
April	1	1	..	..	..	..	..	0	3	..	..	..	..	0	3	2	..	..	..	..	0
May	..	3	..	..	..	..	..	0	1	4	..	..	..	0	2	3	..	..	..	..	0
June	1	5	..	..	..	1	..	1	2	7	..	..	..	0	2	10	..	..	..	..	0
July	1	3	1	..	..	..	..	1	1	3	1	..	..	1	1	5	1	..	..	..	1
August	..	1	1	..	..	..	..	1	..	..	..	..	..	0	..	3	..	..	..	..	0
September	..	..	1	..	..	..	..	1	..	1	..	..	..	0	..	..	3	..	..	1	4

Droughts Started.	ARAMAC. Length in Months.								ISISFORD. Length in Months.								
	1	2-4	5-7	8-10	14-16	17-19	23	F	1	2-4	5-7	8-10	11-13	14-16	17-19	22	F
October	4	6	..	..	..	..	..	0	2	4	2	..	..	1	..	..	3
November	3	3	..	..	..	..	..	0	1	5	1	..	..	..	..	..	1
December	8	2	1	..	..	..	..	1	2	4	2	..	1	..	..	..	3
January	9	3	1	..	..	..	..	1	5	1	1	2	..	..	..	..	3
February	7	5	1	1	..	..	1	3	4	2	..	..	1	..	..	..	1
March	3	6	3	3	1	..	..	7	3	10	1	3	1	1	..	..	6
April	2	11	3	1	..	..	..	4	2	4	4	1	..	..	1	1	7
May	1	1	2	3	..	..	..	5	2	2	3	3	..	..	..	..	6
June	3	1	3	..	..	1	..	4	4	1	1	..	..	..	..	..	1
July	..	5	5	1	1	..	..	7	..	6	4	..	..	..	1	..	5
August	2	6	7	..	..	..	..	7	1	9	5	1	..	..	..	..	6
September	..	2	1	..	..	..	..	1	1	..	..	..	..	..	..	..	0
N	42	51	27	9	2	1	1	40	27	48	24	10	3	2	2	1	42

Droughts Finished.	ARAMAC. Length in Months.								ISISFORD. Length in Months.								
	1	2-4	5-7	8-10	14-16	17-19	23	F	1	2-4	5-7	8-10	11-13	14-16	17-19	22	F
October	..	6	2	..	..	..	..	2	1	10	1	..	..	..	..	..	1
November	4	4	2	2	1	..	..	5	2	4	3	1	..	..	..	..	4
December	3	6	4	3	..	1	..	8	1	2	2	4	1	1	1	..	9
January	8	3	7	1	..	..	1	9	2	5	4	2	..	..	..	..	6
February	9	3	3	2	..	..	..	5	5	5	4	1	2	..	..	1	8
March	7	..	1	..	..	..	..	1	4	1	3	..	..	..	..	..	3
April	3	4	..	..	..	..	..	0	3	2	1	..	..	..	..	..	1
May	2	5	..	1	..	..	..	1	2	4	1	..	..	..	..	..	1
June	1	10	2	..	1	..	..	3	2	7	2	1	..	1	..	..	4
July	3	4	1	..	..	..	..	1	4	7	..	..	..	..	..	..	0
August	..	4	1	..	..	..	..	1	..	..	1	..	..	..	..	..	1
September	2	2	4	..	..	..	..	4	1	1	2	1	..	..	1	..	4

Droughts Started.	BOLLON. Length in Months.						DIRRANBANDI. Length in Months.					
	1	2-4	5-7	8-10	11-13	F	1	2-4	5-7	8-10	11-13	F
October	2	8	..	1	..	1	6	7	2	1	..	3
November	5	1	..	..	..	0	2	3	1	..	..	1
December	3	4	3	..	..	3	5	2	1	..	..	1
January	4	7	3	..	..	3	8	6	6	..	..	6
February	2	9	4	..	..	4	6	5	3	..	..	3
March	4	8	..	..	..	0	2	9	..	1	..	1
April	2	6	1	1	..	2	3	9	2	1	..	3
May	9	1	1	1	..	2	4	1	1	..	..	1
June	4	1	..	..	..	0	4	2	1	..	..	1
July	5	6	2	..	..	2	3	6	2	..	..	2
August	5	13	2	1	..	3	11	10	1	1	..	2
September	2	7	3	1	1	5	1	3	6	..	1	7
N	47	71	19	5	1	25	55	63	26	4	1	31

Droughts Finished.	Length in Months.						Length in Months.					
	1	2-4	5-7	8-10	11-13	F	1	2-4	5-7	8-10	11-13	F
October	2	4	1	..	..	1	1	6	..	..	..	0
November	2	11	1	..	..	1	6	6	3	..	..	3
December	5	10	2	..	..	2	2	9	3	..	..	3
January	3	5	2	2	..	4	5	5	1	2	..	3
February	4	5	1	..	..	1	8	4	4	..	..	4
March	2	4	1	..	..	1	6	3	2	..	..	2
April	4	11	1	1	..	2	2	5	1	1	..	2
May	2	5	..	1	..	1	3	6	3	..	..	3
June	9	10	5	..	..	5	4	11	6	..	..	6
July	4	2	3	1	..	4	4	3	1	1	..	2
August	5	2	..	..	1	1	3	2	..	..	1	1
September	5	2	2	..	..	2	11	3	2	..	..	2

Droughts Started.	BARCALDINE. Length in Months.							ALPHA. Length in Months.				
	1	2-4	5-7	8-10	11-13	14-16	F	1	2-4	5-7	8-10	F
October	4	3	1	..	..	..	1	3	7	..	..	0
November	4	6	..	..	..	..	0	3	4	..	1	1
December	2	2	..	1	..	..	1	14	..	..	..	0
January	7	1	1	..	1	..	2	7	2	2	..	2
February	6	9	..	2	1	..	3	6	7	2	2	4
March	6	7	3	1	..	1	5	7	7	4	1	5
April	3	10	1	1	..	..	2	4	9	2	3	5
May	4	..	..	3	1	..	4	8	..	1	1	2
June	4	3	3	..	..	..	3	4	1	2	..	2
July	2	5	8	..	..	..	8	1	13	6	..	6
August	1	11	5	1	..	..	6	2	7	1	..	1
September	1	2	1	..	..	..	1	1	6	1	..	1
N	44	59	23	9	3	1	36	60	63	21	8	29

Droughts Finished.	BARCALDINE. Length in Months.							ALPHA. Length in Months.				
	1	2-4	5-7	8-10	11-13	14-16	F	1	2-4	5-7	8-10	F
October	1	10	1	..	..	..	1	1	7	..	1	1
November	4	5	1	1	..	..	2	3	14	2	1	3
December	4	4	5	3	1	..	9	3	8	5	1	6
January	2	6	7	2	..	..	9	14	6	3	3	6
February	7	3	2	1	1	..	4	7	..	..	1	1
March	6	1	3	..	..	..	3	6	1	1	..	1
April	6	3	..	..	1	..	1	7	4	..	..	0
May	3	5	..	..	..	1	1	4	3	..	..	0
June	4	13	1	1	..	..	2	8	14	2	..	2
July	4	5	..	..	..	..	0	4	2	..	..	0
August	2	1	2	..	..	..	2	1	1	4	1	5
September	1	3	1	1	..	..	2	2	3	4	..	4

Droughts Started.	BLACKALL. Length in Months.						TAMBO. Length in Months.						AUGATHELLA. Length in Months.						CHARLEVILLE. Length in Months.						
	1	2-4	5-7	8-9	12	F	1	2-4	5-7	8-10	11	F	1	2-4	5-7	8-10	11	F	1	2-4	5-7	8-10	11-12	15	F
October	3	6	..	..	..	0	4	4	..	..	..	0	4	6	1	..	..	1	5	6	..	..	..	..	0
November	2	4	1	1	..	2	7	3	..	..	..	0	5	2	..	..	..	0	4	2	1	..	..	..	1
December	6	4	1	..	..	1	6	5	..	..	..	0	7	2	2	..	..	2	3	1	2	..	..	..	2
January	9	2	4	1	..	5	7	2	2	..	..	2	4	7	2	..	..	2	7	7	3	..	..	..	3
February	5	3	..	..	1	1	7	3	..	1	1	2	6	6	..	1	..	1	3	7	1	..	1	..	2
March	4	8	1	3	..	4	7	10	2	..	..	2	4	8	1	1	1	3	3	6	1	2	1	..	4
April	3	9	3	1	..	4	4	12	5	..	..	5	6	9	..	..	..	0	5	9	2	..	..	..	2
May	3	3	..	3	..	3	4	1	2	1	..	3	5	3	1	..	..	1	7	3	0	1	..	..	1
June	6	2	..	..	..	0	3	1	..	..	..	0	5	5	..	1	..	1	2	3	1	..	..	..	1
July	2	8	6	..	..	6	1	11	4	..	..	4	1	7	4	..	..	4	3	8	4	1	..	..	5
August	3	11	2	1	..	3	2	13	4	1	..	5	4	15	3	..	..	3	3	8	2	2	..	1	5
September	4	5	..	..	..	0	1	5	..	..	..	0	4	4	3	..	..	3	2	4	3	1	..	..	4
N	50	65	18	10	1	29	53	70	19	3	1	23	55	74	17	3	1	21	47	64	20	7	2	1	30

Droughts Finished.	BLACKALL. Length in Months.						TAMBO. Length in Months.						AUGATHELLA. Length in Months.						CHARLEVILLE. Length in Months.						
	1	2-4	5-7	8-9	12	F	1	2-4	5-7	8-10	11	F	1	2-4	5-7	8-10	11	F	1	2-4	5-7	8-10	11-12	15	F
October	4	8	1	..	..	1	1	9	..	..	..	0	4	8	..	..	..	0	2	7	..	..	..	..	0
November	3	6	1	1	..	2	4	9	4	..	..	4	4	10	..	1	..	1	5	9	..	..	..	1	1
December	2	11	2	3	..	5	7	6	5	1	..	6	5	10	5	1	..	6	4	6	5	1	..	..	6
January	6	6	4	3	..	7	6	8	3	1	1	5	7	4	2	..	..	2	3	6	2	1	..	..	3
February	9	3	1	..	1	2	7	3	1	..	..	1	4	2	3	1	1	5	7	1	3	1	2	..	6
March	5	4	1	..	..	1	7	3	..	..	..	0	6	4	1	..	..	1	3	5	..	..	..	..	0
April	4	1	..	..	..	0	7	1	..	..	..	0	4	3	..	..	..	0	3	5	..	2	..	..	2
May	3	6	..	1	..	1	4	5	..	..	..	0	6	7	1	..	..	1	5	6	1	1	..	..	2
June	3	11	5	..	..	5	4	16	1	1	..	2	5	12	3	..	..	3	7	10	4	1	..	..	5
July	6	5	..	..	..	0	3	3	..	..	..	0	5	5	1	..	..	1	2	6	..	..	..	..	0
August	2	1	2	1	..	3	1	2	3	..	..	3	1	4	1	..	..	1	3	2	2	..	..	..	2
September	3	3	1	1	..	2	2	5	2	..	..	2	4	5	..	..	..	0	3	1	3	..	..	..	3

Droughts Started.	MORVEN.						MUCKADILLA.						MITCHELL.					
	Length in Months.						Length in Months.						Length in Months.					
	1	2-4	5-7	8-10	11	F	1	2-4	5-7	8-10	14	F	1	2-4	5-7	8-9	14	F
October ..	3	7	2	..	..	2	2	4	..	..	..	0	2	4	..	..	..	0
November ..	6	1	1	..	..	1	3	2	..	..	..	0	2	3	..	..	..	0
December ..	7	4	1	..	..	1	5	2	1	..	..	1	5	3	2	..	..	2
January ..	7	5	1	1	..	2	8	7	1	..	..	1	8	6	2	..	..	2
February ..	7	7	..	1	..	1	7	2	1	..	..	1	6	6	..	..	..	0
March	6	5	..	..	..	0	7	6	2	1	..	3	4	5	..	1	..	1
April	8	11	..	..	..	0	7	13	..	1	..	1	10	13	..	..	..	0
May	9	2	..	..	..	0	8	3	1	..	..	1	9	1	1	..	..	1
June	3	3	3	..	..	3	4	..	3	..	..	3	6	1	..	1	..	1
July	4	10	3	..	..	3	2	7	1	..	..	1	2	10	2	..	..	2
August	4	12	2	1	..	3	4	16	1	1	..	2	2	19	2	..	..	2
September ..	2	8	1	..	1	2	..	9	2	..	1	3	2	4	2	..	1	3
N	66	75	14	3	1	18	57	71	13	3	1	17	58	75	11	2	1	14
Droughts Finished.	Length in Months.						Length in Months.						Length in Months.					
	1	2-4	5-7	8-10	11	F	1	2-4	5-7	8-10	14	F	1	2-4	5-7	8-9	14	F
October ..	2	8	..	..	..	0	..	10	..	..	..	0	2	11	..	..	..	0
November ..	3	13	1	..	..	1	2	10	..	..	1	1	2	13	..	..	1	1
December ..	6	9	4	1	..	5	3	12	5	1	..	6	2	8	3	1	..	4
January ..	7	3	1	..	..	1	5	3	1	1	..	2	5	2	1	..	..	1
February ..	7	4	2	..	..	2	8	2	2	..	..	2	8	2	2	1	..	3
March	7	3	2	..	..	2	7	5	..	..	..	0	6	9	1	..	..	1
April	6	2	..	1	..	1	7	4	..	..	..	0	4	5	..	..	..	0
May	8	7	1	..	..	1	7	5	..	1	..	1	10	4	..	..	..	0
June	9	13	2	..	..	2	8	10	2	..	..	2	9	12	4	..	..	4
July	3	3	1	..	..	1	4	6	1	..	..	1	6	3	..	..	..	0
August	4	5	..	..	1	1	2	3	1	..	..	1	2	3	..	..	..	0
September ..	4	5	..	1	..	1	4	1	1	..	..	1	2	3	..	..	..	0

Droughts Started.	ROMA. Length in Months.						SURAT. Length in Months.					ST. GEORGE. Length in Months.						CLERMONT. Length in Months.				
	1	2-5	5-7	8-10	11	F	1	2-4	5-7	15	F	1	2-4	5-7	8-10	11	F	1	2-4	5-7	8-10	F
October ..	3	4	..	..	..	0	2	9	..	..	0	1	8	3	..	..	3	5	3	..	..	0
November ..	7	3	..	..	..	0	4	5	..	..	0	3	1	..	..	..	0	4	5	..	..	0
December ..	7	3	..	..	..	0	5	..	..	..	0	7	1	2	..	..	2	6	2	..	..	0
January ..	4	9	..	..	..	0	9	7	1	..	1	6	4	3	..	1	4	4	2	1	1	2
February ..	6	5	1	1	1	3	6	7	2	..	2	7	6	2	1	..	3	9	3	..	4	4
March ..	5	9	..	..	..	0	5	9	..	..	0	1	9	1	..	..	1	6	9	1	..	1
April ..	8	9	3	1	..	4	9	11	1	..	1	5	14	..	1	..	1	4	8	4	1	5
May ..	6	3	1	..	..	1	7	3	..	..	0	..	2	1	..	..	1	9	2	2	1	3
June ..	5	1	1	..	..	1	5	2	1	..	1	4	1	..	2	..	2	1	3	..	..	0
July ..	2	8	2	..	..	2	1	8	1	..	1	5	7	2	1	..	3	2	9	6	..	6
August ..	5	14	1	..	..	1	6	14	1	..	1	11	8	1	1	..	2	2	12	4	..	4
September	2	4	5	..	..	5	4	6	..	1	1	2	6	3	..	1	4	..	4	..	..	0
N	60	72	14	2	1	17	63	81	7	1	8	52	67	18	6	2	26	52	62	18	7	25

Droughts Finished.	Length in Months.						Length in Months.					Length in Months.						Length in Months.				
	1	2-4	5-7	8-10	11	F	1	2-4	5-7	15	F	1	2-4	5-7	8-10	11	F	1	2-4	5-7	8-10	F
October ..	2	11	1	..	..	1	4	8	1	..	1	2	5	1	..	..	1	..	10	1	1	2
November ..	3	8	2	..	..	2	2	7	..	..	0	1	8	..	1	..	1	5	11	3	2	5
December ..	7	4	2	2	..	4	4	13	2	1	3	3	8	1	1	1	3	4	5	4	2	6
January ..	7	6	..	..	1	1	5	9	1	..	1	7	6	1	..	..	1	6	7	5	1	6
February ..	4	3	4	..	..	4	9	1	..	..	0	6	2	3	2	..	5	4	2	1	..	1
March ..	6	5	3	..	..	3	6	6	..	..	0	7	3	3	..	..	3	9	2	..	..	0
April ..	5	5	..	..	..	0	5	5	..	..	0	1	3	1	1	..	2	6	1	..	..	0
May ..	8	6	..	..	..	0	9	7	..	..	0	5	5	1	..	..	1	4	4	..	..	0
June ..	6	15	..	..	..	0	7	14	1	..	1	..	19	2	1	..	3	9	11	..	..	0
July ..	5	2	1	..	..	1	5	4	1	..	1	4	3	3	..	..	3	1	4	1	..	1
August ..	2	3	..	..	..	0	1	3	..	..	0	5	3	..	..	1	1	2	3	..	..	0
September	5	4	1	..	..	1	6	4	1	..	1	11	2	2	..	..	2	2	2	3	1	4

Droughts Started.	EMERALD.						SPRINGSURE.					TAROOM.					YULEBA.				
	Length in Months.						Length in Months.					Length in Months.					Length in Months.				
	1	2-4	5-7	8-10	11	F	1	2-4	5-7	8-10	F	1	2-4	5-7	8-10	F	1	2-4	5-7	8-10	F
October	7	6	..	..	..	0	3	6	..	..	0	4	3	1	..	1	4	4	..	..	..
November ..	3	2	..	..	..	0	3	4	..	..	0	4	1	..	..	0	5	2	..	..	..
December ..	8	2	..	..	..	0	8	1	..	..	0	8	1	..	..	0	6	1	..	..	..
January	9	..	..	1	..	1	7	1	1	..	1	7	3	..	..	0	6	3	..	..	..
February	8	6	1	2	..	3	8	5	..	1	1	6	3	2	..	2	7	7	..	1	1
March	5	10	1	..	..	1	10	6	2	3	5	5	9	1	1	2	7	5	1	..	1
April	5	11	4	1	..	5	5	11	3	2	5	6	12	1	..	1	12	10	1	..	1
May	8	1	2	..	1	3	7	5	2	1	3	8	2	1	..	1	11	3	..	..	0
June	..	2	2	..	..	2	..	4	1	..	1	4	2	2	..	2	3	3	1	..	1
July	3	13	3	..	..	3	3	10	2	..	2	6	11	..	..	0	4	9	2	..	2
August	3	9	3	..	..	3	1	10	3	..	3	6	15	..	..	0	7	14	..	..	0
September ..	3	4	..	..	..	0	5	3	..	..	0	1	5	..	..	0	2	6	3	..	3
N	62	66	16	4	1	21	60	66	14	7	21	65	67	8	1	9	74	67	8	1	9
Droughts Finished.	Length in Months.						Length in Months.					Length in Months.					Length in Months.				
	1	2-4	5-7	8-10	11	F	1	2-4	5-7	8-10	F	1	2-4	5-7	8-10	F	1	2-4	5-7	8-10	F
October	3	5	2	1	..	3	5	9	1	1	2	1	13	2	..	2	2	10	..	1	1
November ..	7	12	5	..	..	5	3	11	2	2	4	4	13	1	..	1	4	10	..	..	0
December ..	3	8	2	2	..	4	3	7	2	3	5	4	4	2	1	3	5	7	3	..	3
January	8	4	4	..	..	4	8	4	4	..	4	8	1	..	..	0	6	4	..	..	0
February	9	2	1	..	..	1	7	2	..	1	1	7	2	..	..	0	6	1	2	..	2
March	8	..	..	..	..	0	8	..	..	..	0	6	1	1	..	1	7	1	1	..	1
April	5	2	..	..	1	1	10	..	..	..	0	5	4	..	..	0	7	7	..	..	0
May	5	1	..	..	..	0	5	5	..	..	0	6	5	..	..	0	12	2	..	..	0
June	8	16	..	..	..	0	7	15	1	..	1	8	14	..	..	0	11	12	..	..	0
July	..	6	..	..	..	0	..	4	..	..	0	4	3	1	..	1	3	4	..	..	0
August	3	5	2	..	..	2	3	5	..	..	0	6	1	..	..	0	4	3	1	..	1
September ..	3	5	..	1	..	1	1	4	4	..	4	6	6	1	..	1	7	6	1	..	1

Droughts Started.	MILES. Length in Months.					DALBY. Length in Months.				GOONDIWINDI. Length in Months.			
	1	2-4	5-7	8	F	1	2-4	5-7	F	1	2-4	5-7	F
October	4	4	..	..	0	6	7	..	0	6	7	1	1
November	6	1	1	..	1	3	..	1	1	5	4	..	0
December	8	1	..	..	0	10	3	..	0	7	2	..	0
January	7	2	..	..	0	5	3	..	0	8	4	1	1
February	10	2	1	..	1	12	5	2	2	9	9	2	2
March	10	3	..	1	1	8	4	2	2	6	9	..	0
April	12	9	1	..	1	11	10	1	1	9	4	1	1
May	9	3	..	..	0	9	4	1	1	9	2	..	0
June	6	1	1	..	1	6	..	1	1	7	1	1	1
July	3	11	1	..	1	1	7	..	0	5	3	..	0
August	8	11	..	..	0	9	13	..	0	16	5	..	0
September	8	5	1	..	1	8	5	..	0	5	10	1	1
N	91	53	6	1	7	88	61	8	8	92	60	7	7
Droughts Finished.	**Length in Months.**					**Length in Months.**				**Length in Months.**			
	1	2-4	5-7	8	F	1	2-4	5-7	F	1	2-4	5-7	F
October	8	11	..	..	0	8	4	2	2	5	5	..	0
November	4	8	1	1	2	6	13	..	0	6	8	1	1
December	6	5	1	..	1	3	10	1	1	5	9	1	1
January	8	3	1	..	1	10	1	..	0	7	6	..	0
February	7	1	1	..	1	5	3	..	0	8	3	1	1
March	10	..	..	..	0	12	2	..	0	9	2	1	1
April	10	2	..	..	0	8	2	1	1	6	4	..	0
May	12	1	1	..	1	11	3	..	0	9	11	..	0
June	9	12	..	..	0	9	14	..	0	9	9	1	1
July	6	2	1	..	1	6	2	1	1	7	1	1	1
August	3	2	..	..	0	1	1	1	1	5	..	1	1
September	8	6	..	..	0	9	6	2	2	16	2	..	0

Droughts Started.	PITTSWORTH.					WARWICK.		
	Length in Months.					Length in Months.		
	1	2-4	5-7	8	F	1	2-4	F
October ..	5	5	..	..	0	8	1	0
November ..	6	2	..	..	0	5	2	0
December ..	4	1	..	..	0	8	..	0
January ..	6	1	..	..	0	6	2	0
February ..	8	8	..	1	1	8	5	0
March	7	5	2	..	2	10	6	0
April	13	8	..	..	0	16	5	0
May	11	..	..	..	0	9	2	0
June	7	1	1	..	1	8	1	0
July	2	8	..	..	0	4	5	0
August ..	15	10	..	..	0	14	4	0
September ..	3	4	..	..	0	5	7	0
N	87	53	3	1	4	101	40	0
Droughts Finished.	Length in Months.					Length in Months.		
	1	2-4	5-7	8	F	1	2-4	F
October ..	3	13	..	1	1	5	5	0
November ..	5	4	..	..	0	8	6	0
December ..	6	7	..	..	0	5	3	0
January ..	4	2	1	..	1	8	2	0
February .	6	1	..	..	0	6	..	0
March	8	..	..	..	0	8	..	0
April	7	2	..	..	0	10	3	0
May	13	7	..	..	0	16	7	0
June	11	12	..	..	0	9	7	0
July	7	1	..	..	0	8	1	0
August ..	2	..	1	..	1	4	2	0
September	15	4	1	..	1	14	4	0

Table 7.

STANDARDS FOR THE CLASSIFICATION OF YEARS.

Station.	Points Allotted.		
	Good to Fair.	Mediocre.	Bad.
Urandangie Thargomindah Camooweal Jundah	6–12	3–5	<3
Boulia Windorah South Comongin Eulo Kynuna Winton Longreach Adavale Cloncurry Richmond Hughenden Aramac Isisford Torrens Creek	6–12	4–5	<4
Wyandra Cunnamulla Listowel Downs Boatman Bollon Dirranbandi Barcaldine Jericho Alpha Blackall Augathella Charleville Morven	7–12	4–6	<4

STANDARDS FOR THE CLASSIFICATION OF YEARS.

Station.	Points Allotted.		
	Good to Fair.	Mediocre.	Bad.
Thallon, Tambo, Muckadilla, Mitchell, Roma, St. George, Talwood, Clermont, Emerald, Springsure, Taroom	8–12	5–7	<5
Surat, Yuleba, Miles, Goondiwindi	9–12	6–8	<6
Dalby, Pittsworth, Warwick	10–12	7–9	<7

Table 8.

NUMBER OF YEARS IN WHICH DROUGHT LOSSES OF VARIOUS DEGREES WERE EXPERIENCED.

Pastoral Districts.	Percentage Drought Losses.								
	1	1-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
Burke	3	4	9	2	..	1	..	1	..
North Gregory	4	5	5	4	..	1	..	..	1
South Gregory	2	8	5	1	2	1	..	..	..
Leichhardt	2	11	5	..	1	1	..	..	..
Maranoa	3	8	8	1	..	..	..	..	..
Mitchell	4	6	7	1	1	..	1	..	..
South Kennedy	4	9	4	1	1	..	..	..	1
Warrego	3	8	7	2	..	..	..	..	..

Table 9.

NUMBER OF YEARS IN WHICH BREEDING EWES CONSTITUTED VARIOUS PERCENTAGES OF THE TOTAL FLOCK.

Pastoral District.	More than 50% of Total Flock.	Between 40 and 50% of Total Flock.	Less than 40% of Total Flock.
Burke	2	16	1
Gregory North	6	13	0
Gregory South	10	6	3
Leichhardt	1	0	18
Maranoa	0	7	12
Mitchell	2	13	4
South Kennedy ..	0	2	17
Warrego	1	17	1

EXPLANATION OF FIGS. 1–49.

The black dots represent months with estimated effective rainfall. The diagonal lines indicate months for which there is no record. E.S. = early summer; L.S. = late summer; E.W. = early winter; M.W. = midwinter; L.W. = late winter.

URANDANGIE

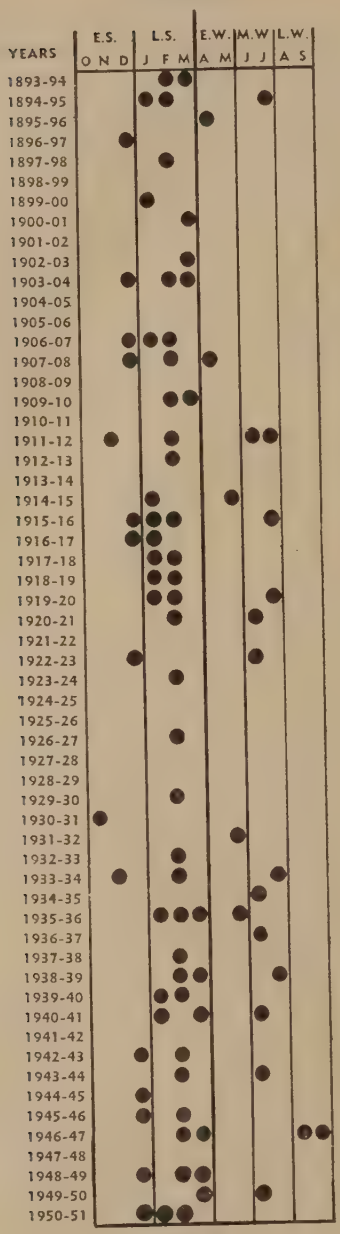


Fig. 1.

BOULIA

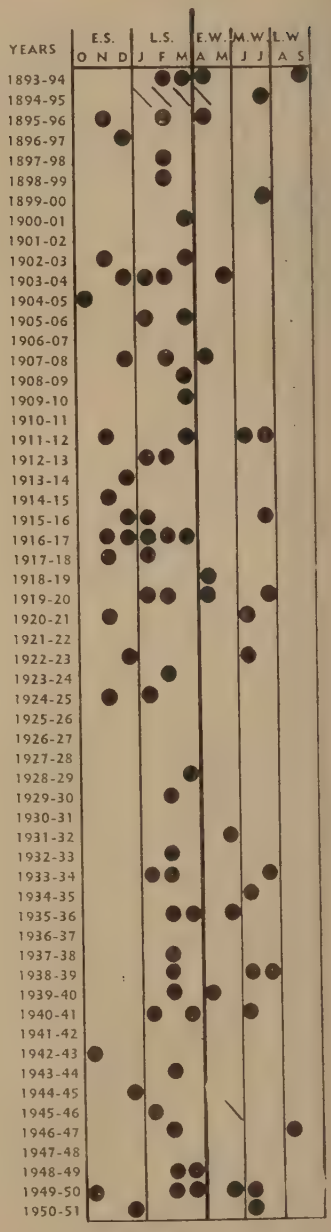


Fig. 2.

WINDORAH

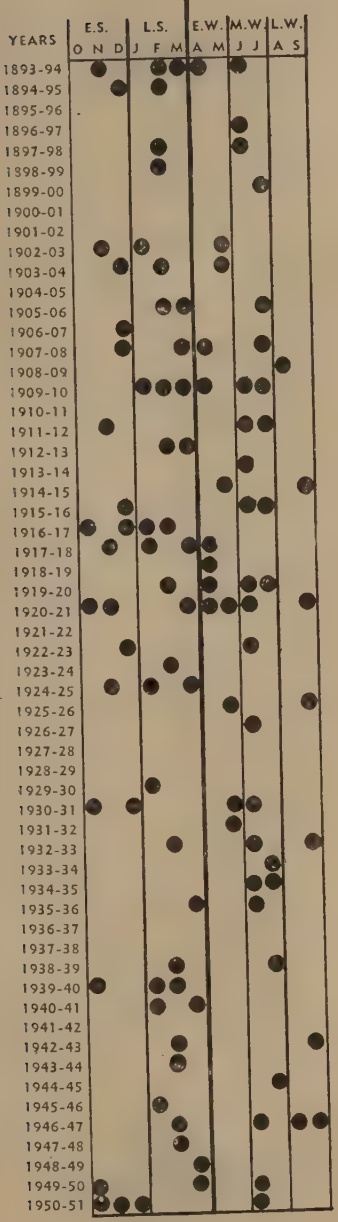


Fig. 3.

SOUTH COMONGIN

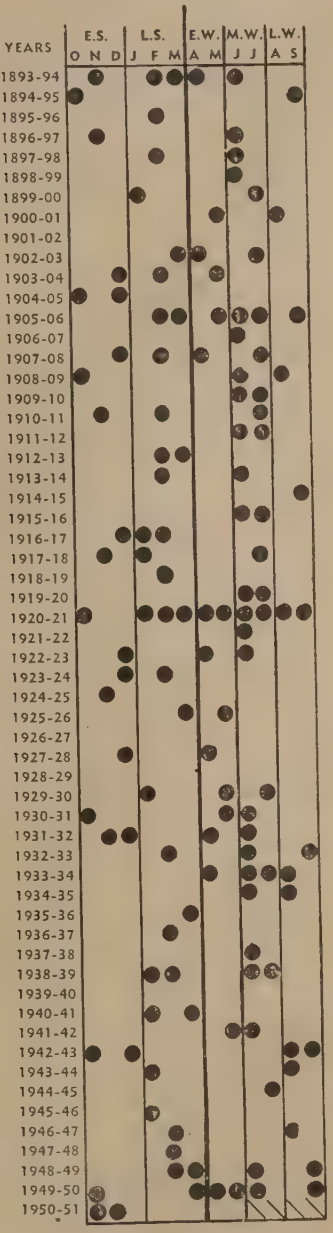


Fig. 4.

THARGOMINDAH

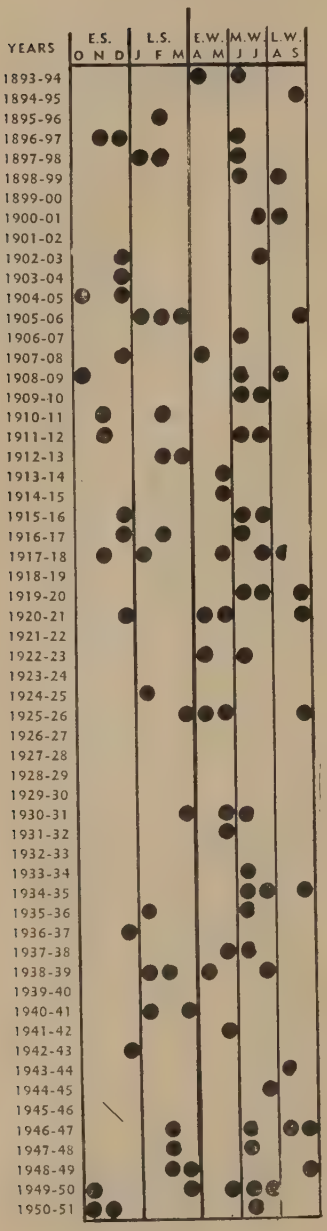


Fig. 5.

EULO

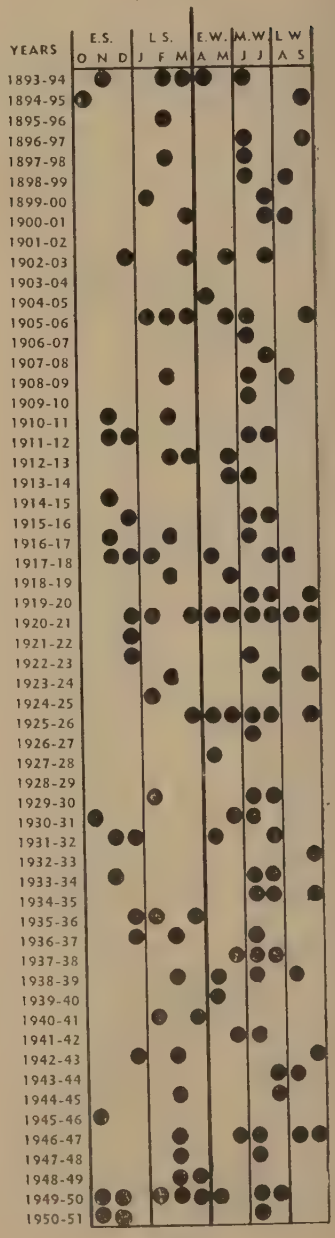


Fig. 6.

CAMOOWEAL

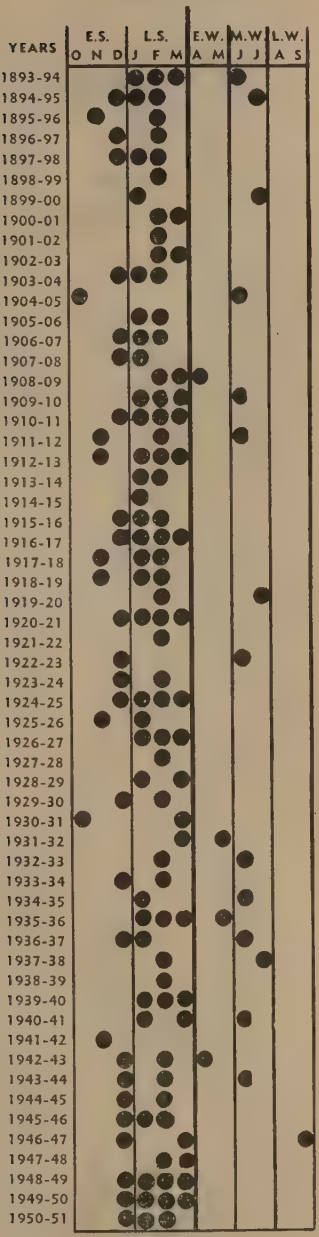


Fig. 7.

KYNUNA

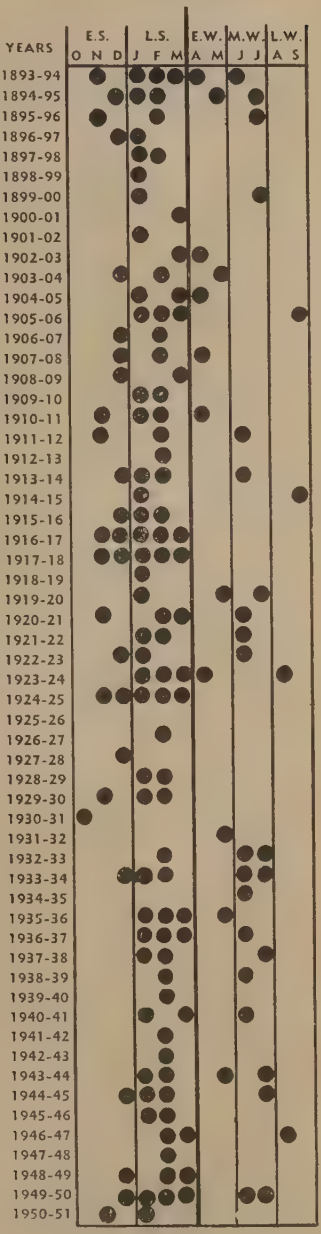


Fig. 8.

WINTON

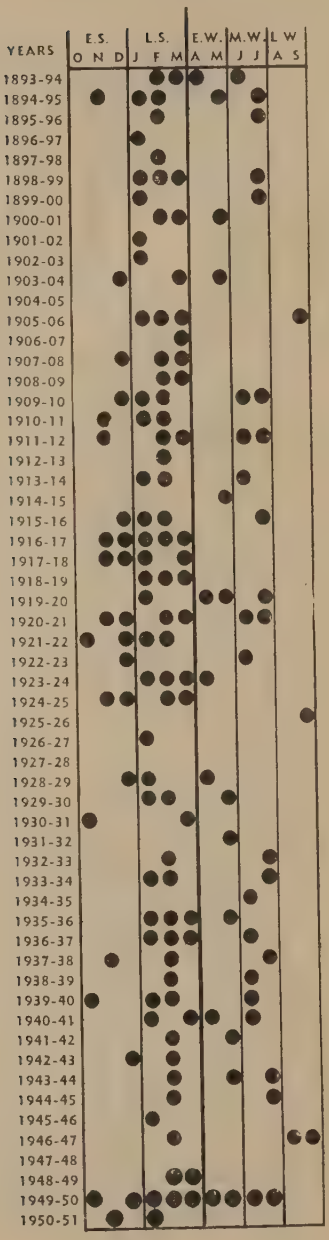


Fig. 9.

LONGREACH

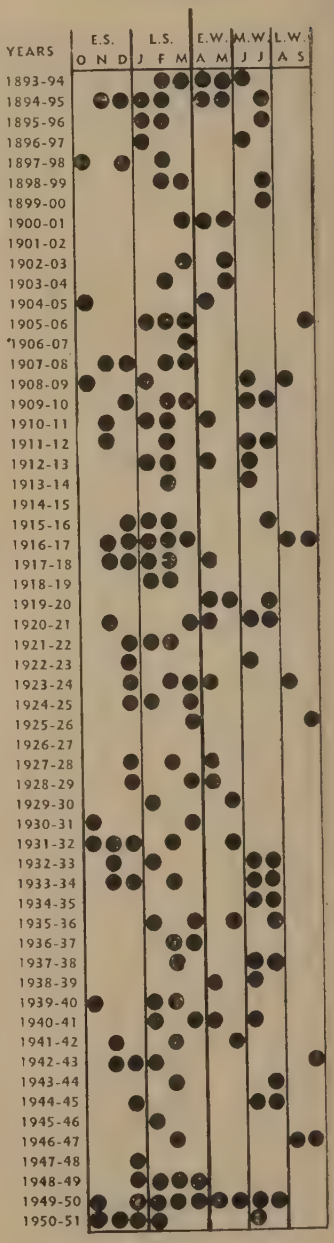


Fig. 10.

JUNDAH

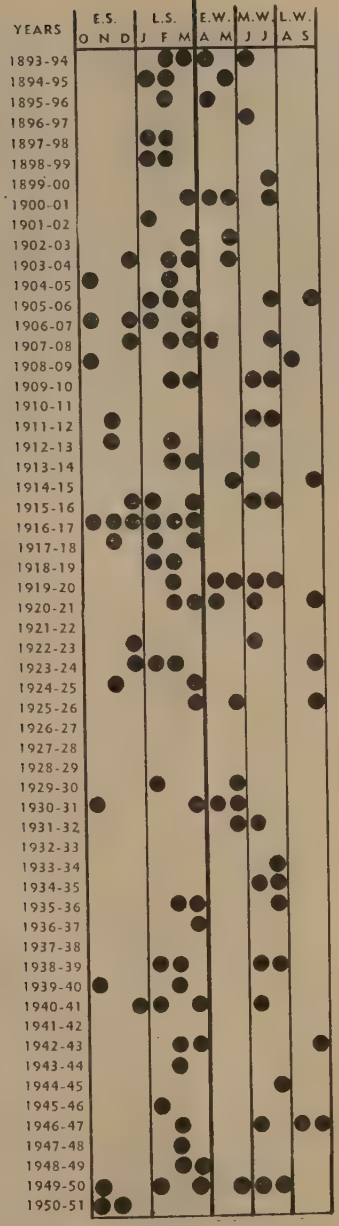


Fig. 11.

ADAVALE

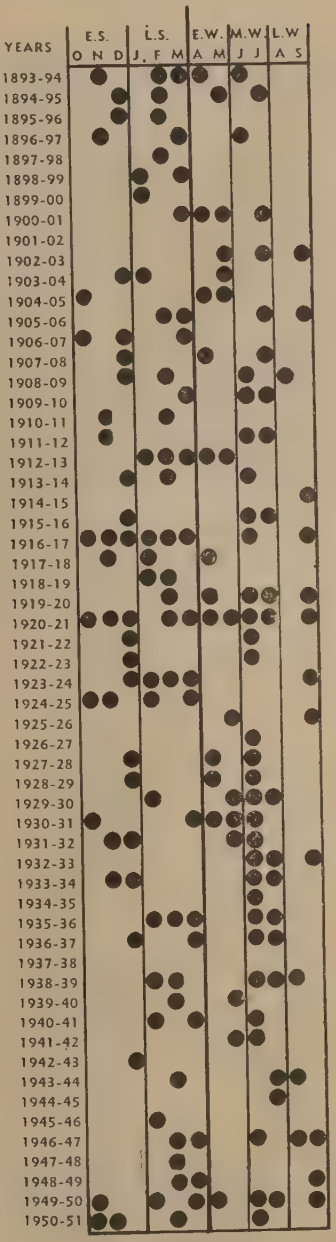


Fig. 12.

CUNNAMULLA

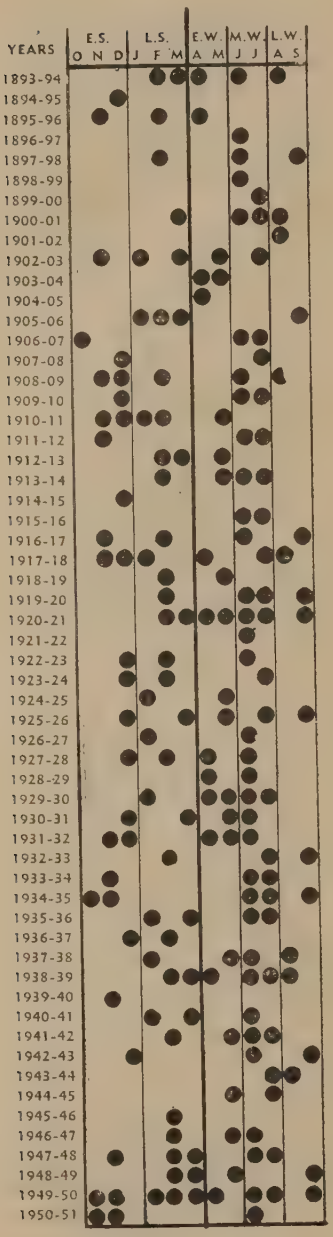


Fig. 13.

CLONCURRY

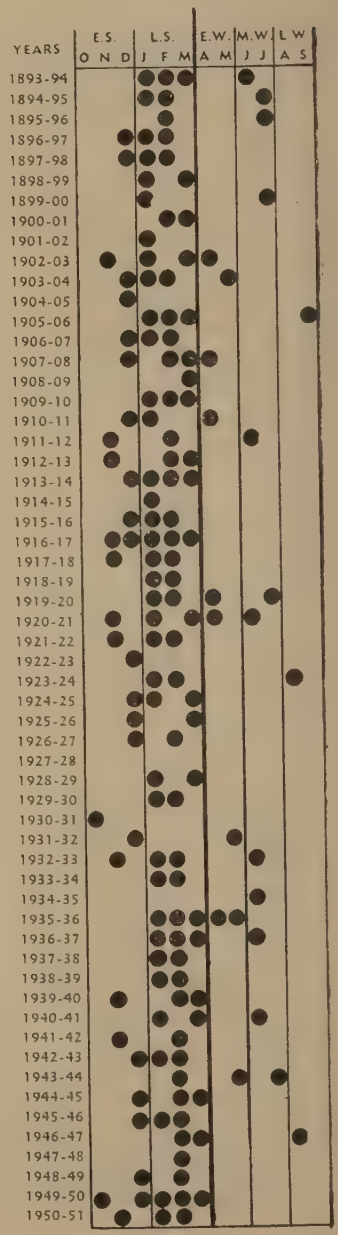


Fig. 14.

FIG. 2

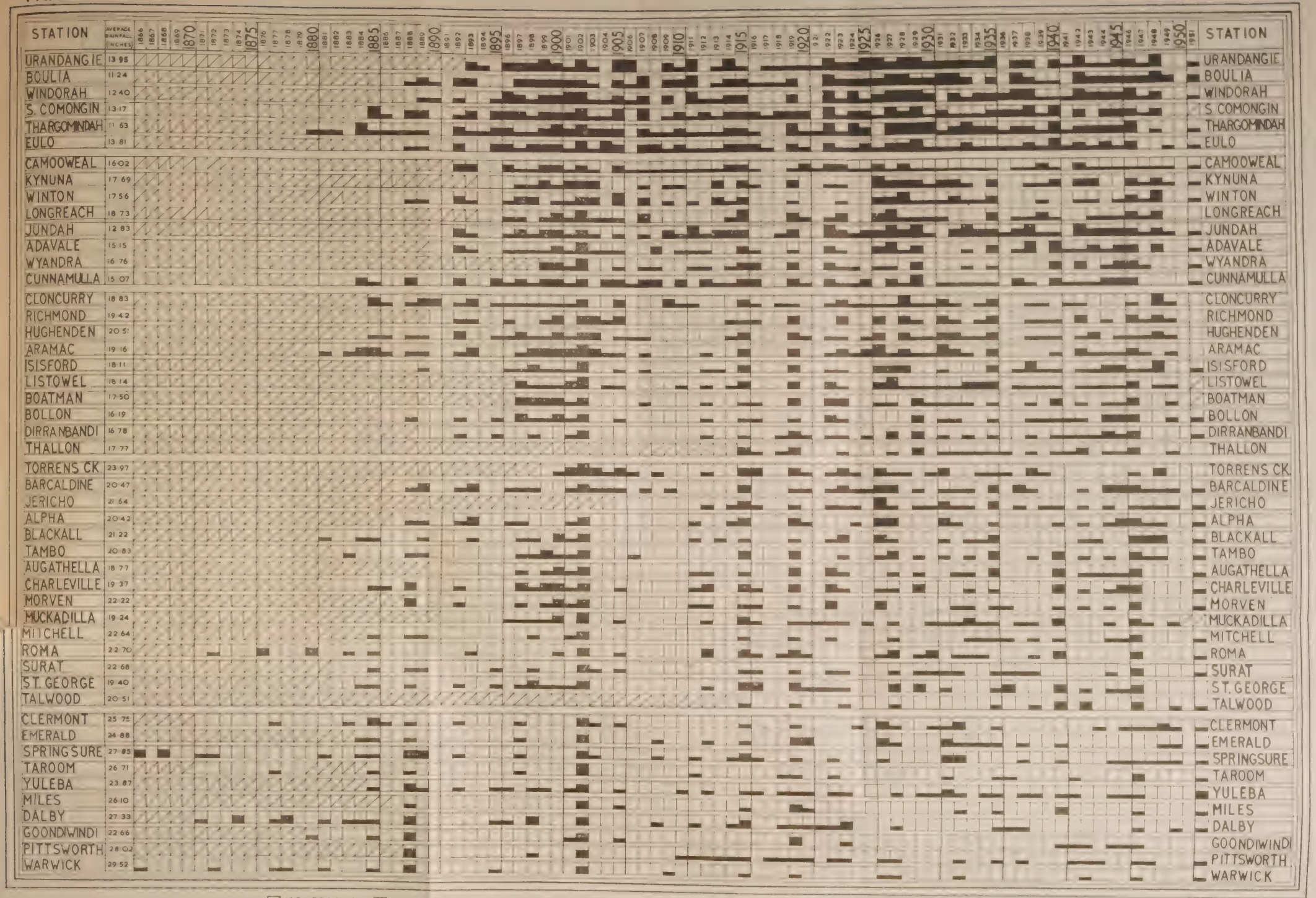


Fig. 51.

Grid Showing Classification of Years on Basis of Effective Rainfall.

RICHMOND

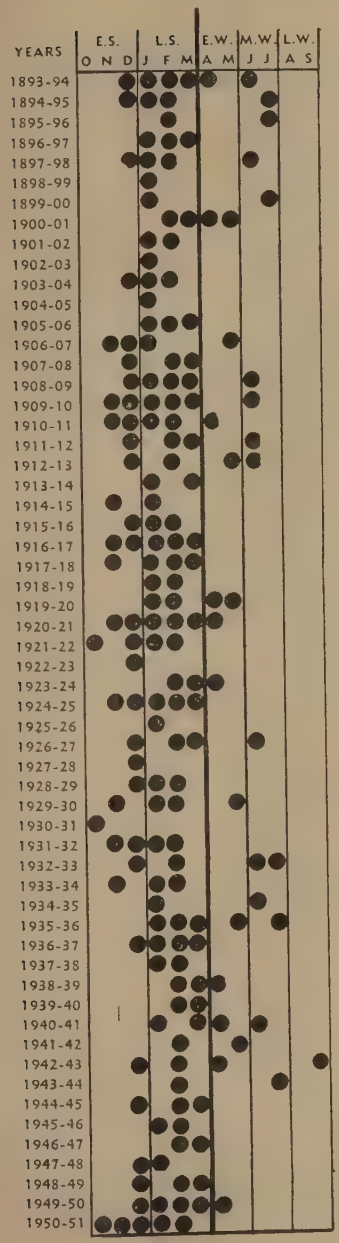


Fig. 15.

HUGHENDEN

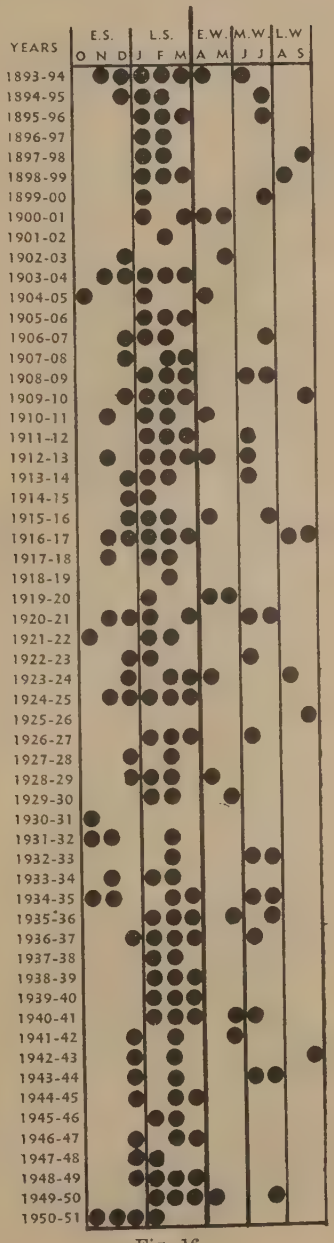


Fig. 16.

ARAMAC

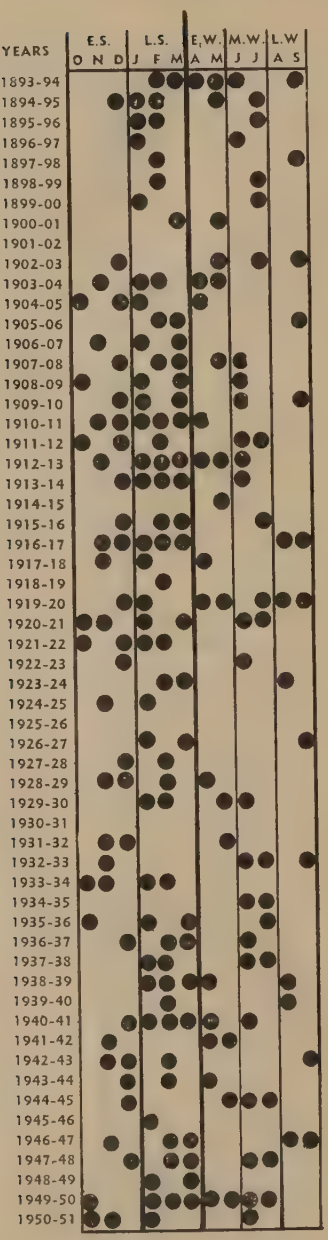


Fig. 17.

ISISFORD

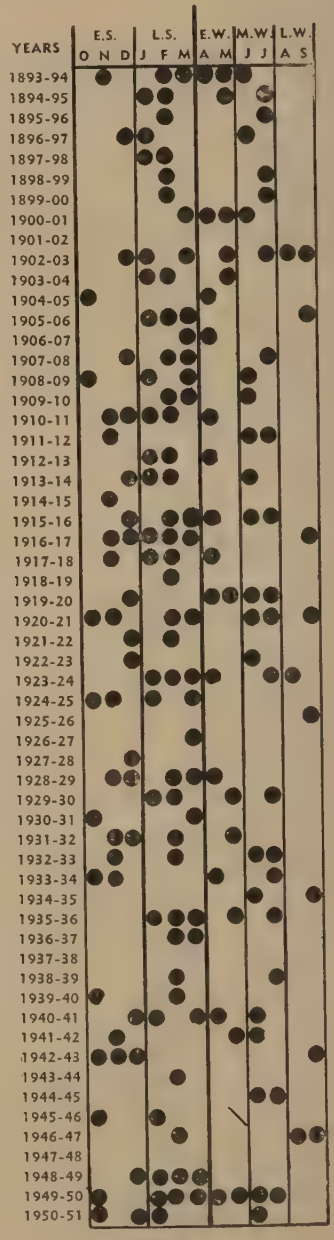


Fig. 18.

BOLLON

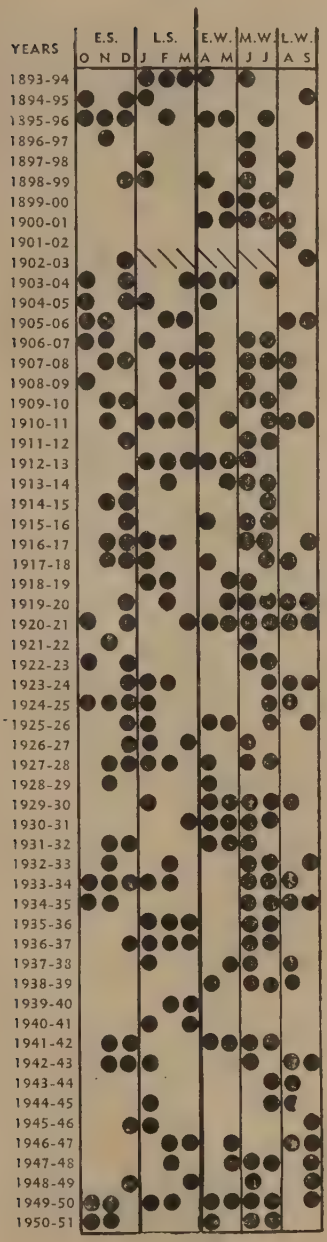


Fig. 19.

DIRRANBANDI

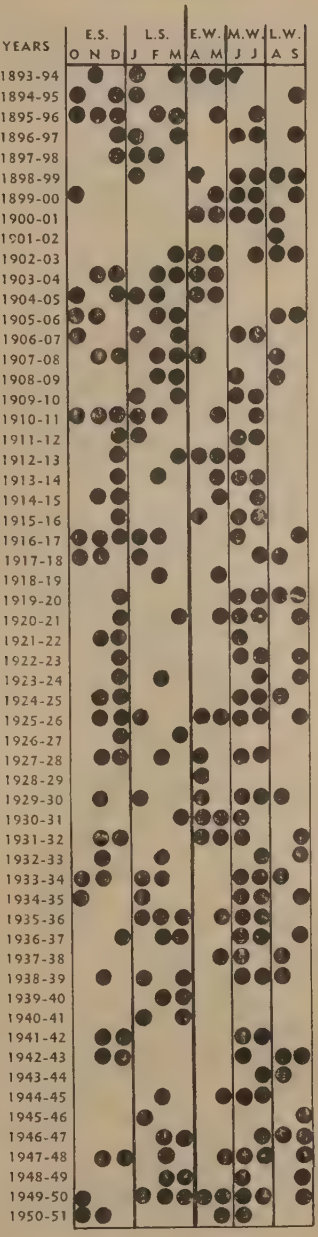


Fig. 20.

BARCALDINE

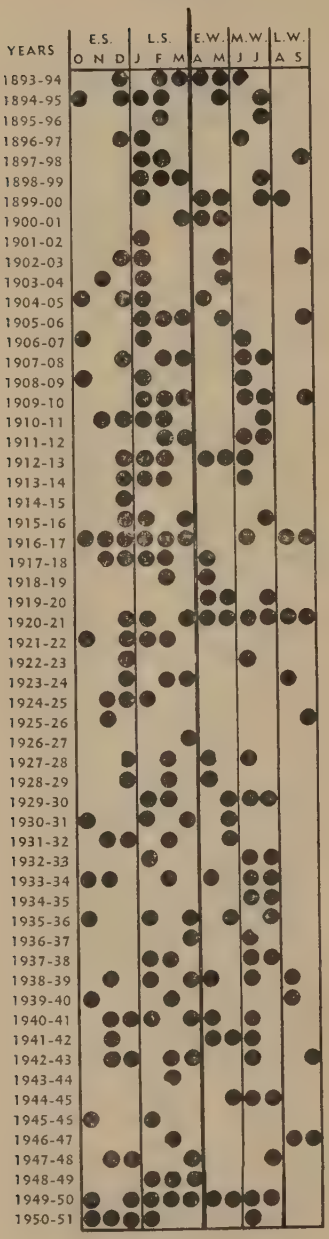


Fig. 21.

ALPHA

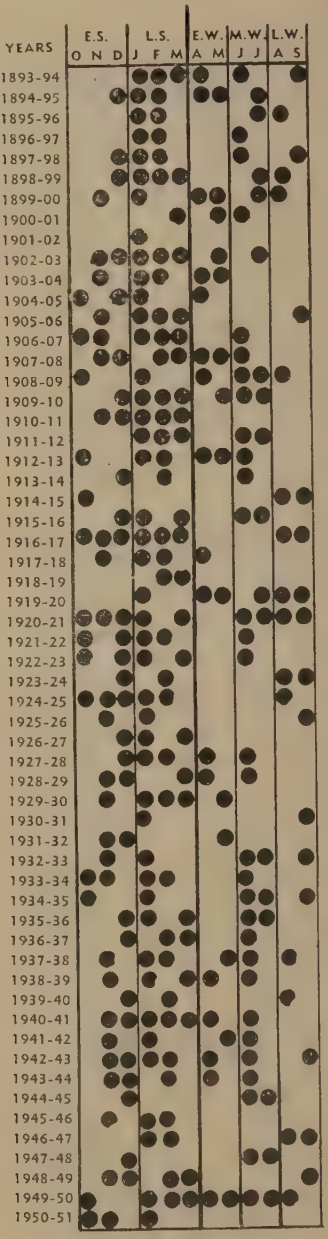


Fig. 22.

BLACKALL

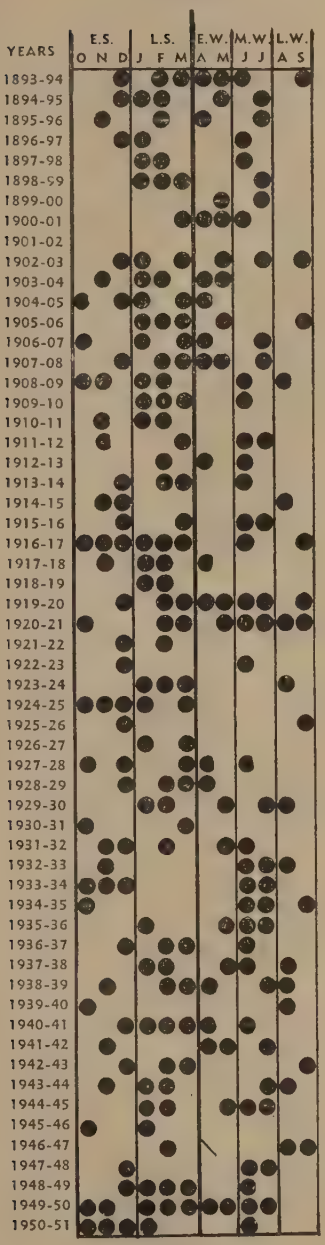


Fig. 23.

TAMBO

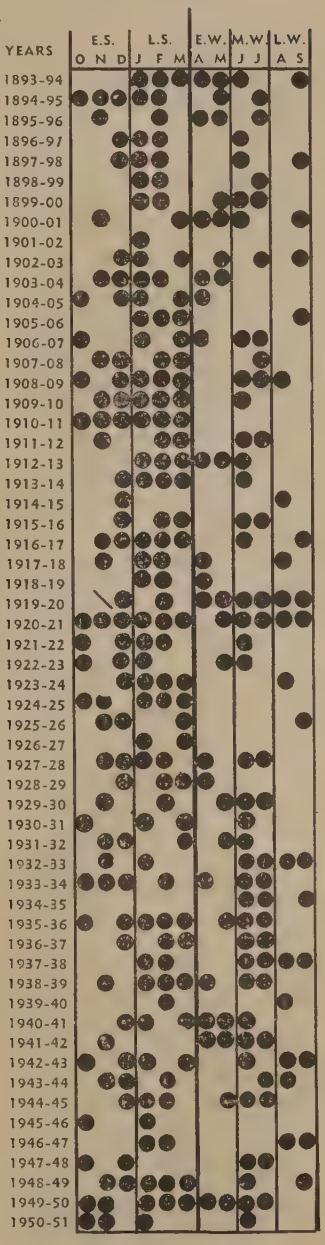


Fig. 24.

AUGATHELLA

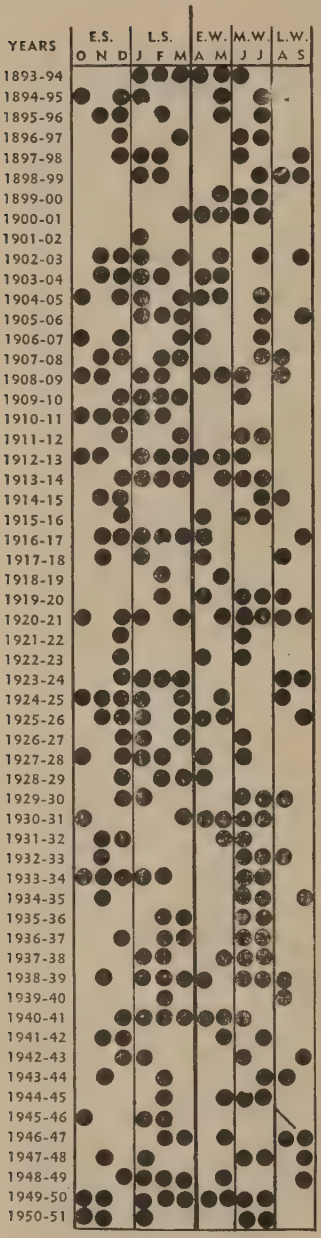



Fig. 25.

CHARLEVILLE

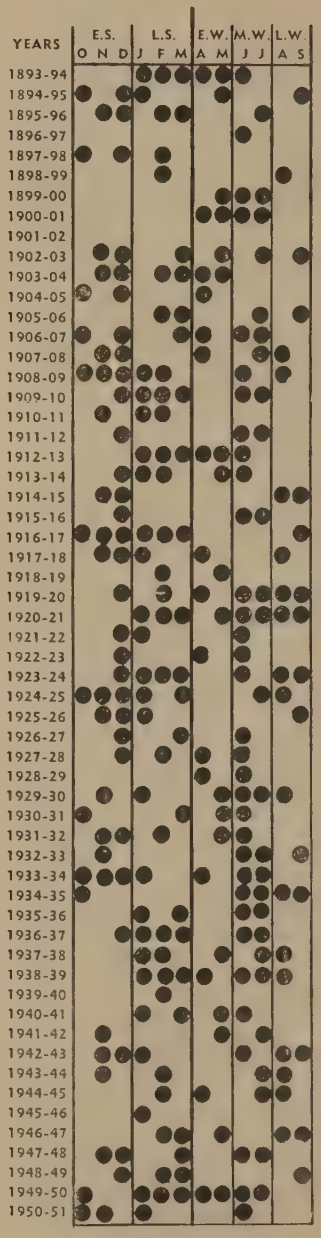


Fig. 26.

MORVEN

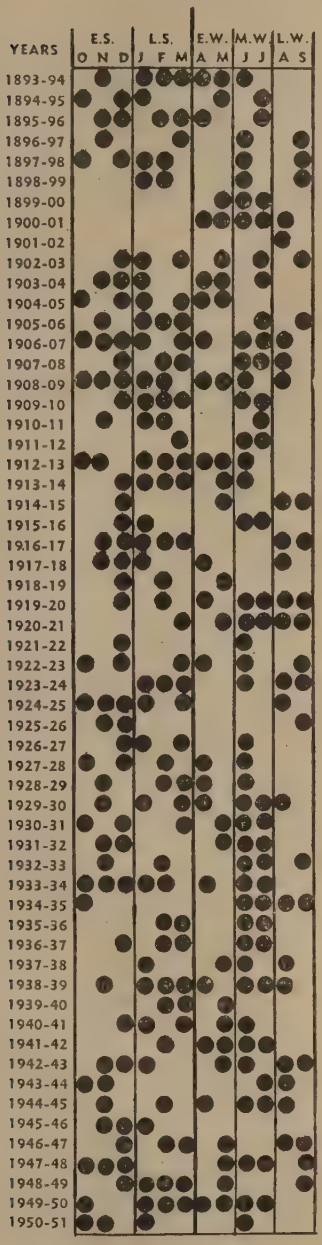


Fig. 27.

MUCKADILLA

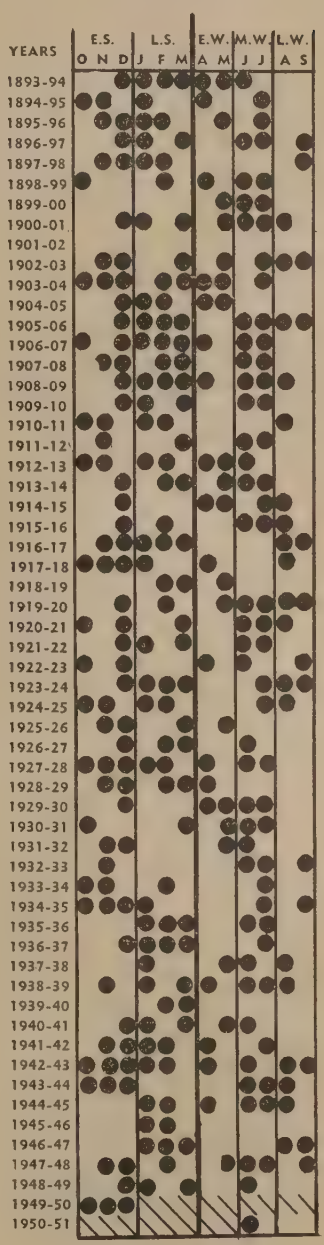


Fig. 28.

MITCHELL

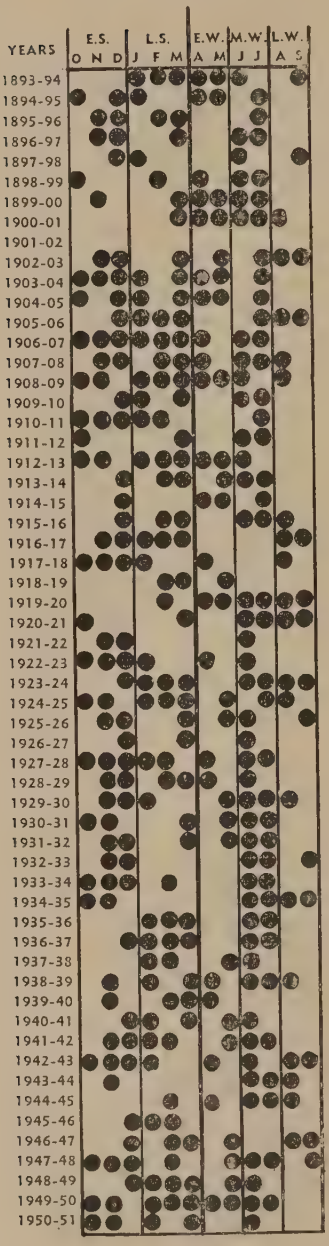


Fig. 29.

ROMA

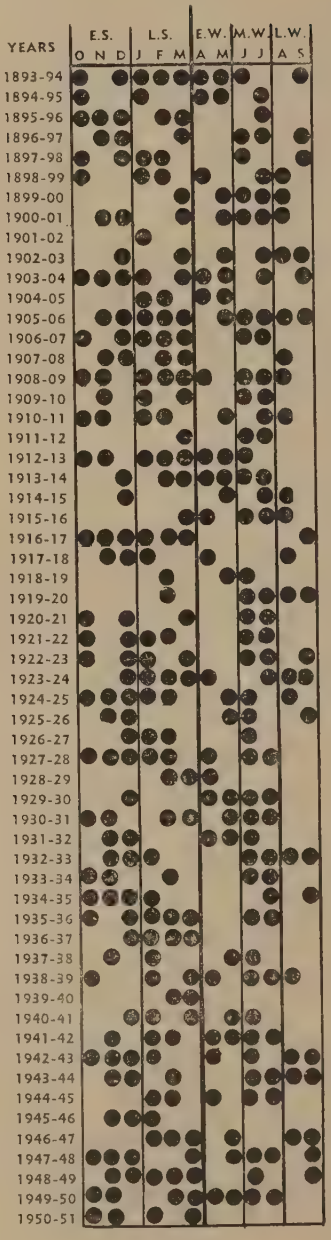


Fig. 30.

SURAT

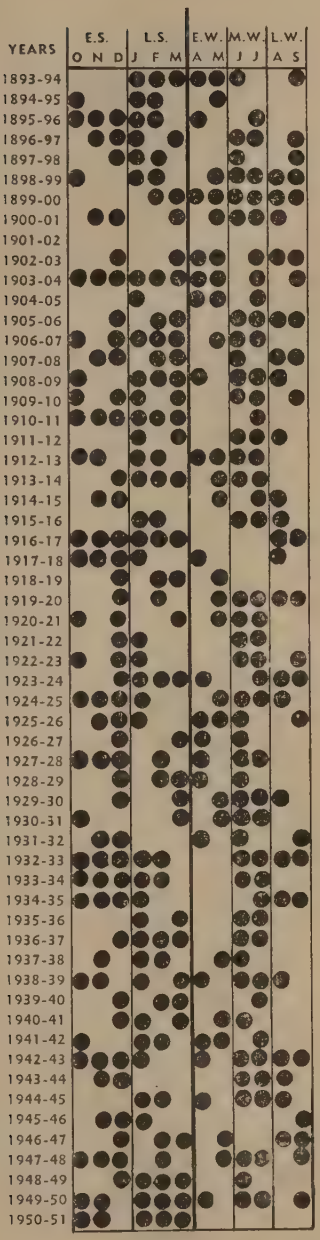


Fig. 31.

ST. GEORGE

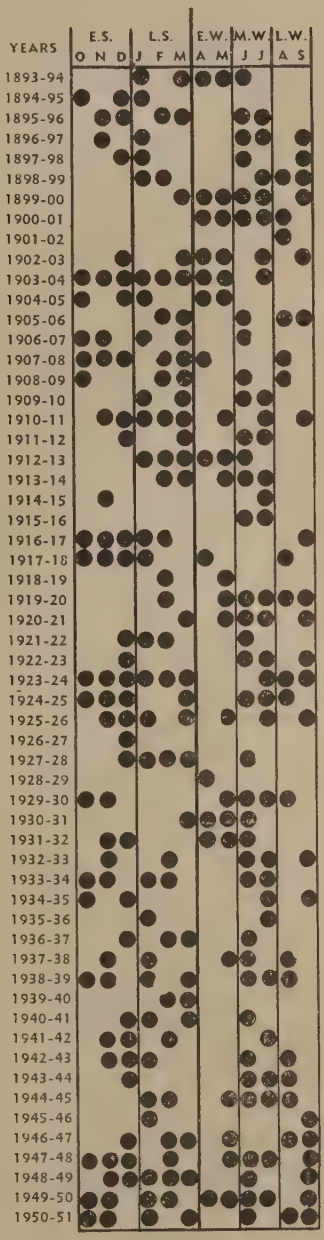


Fig. 32.

CLERMONT

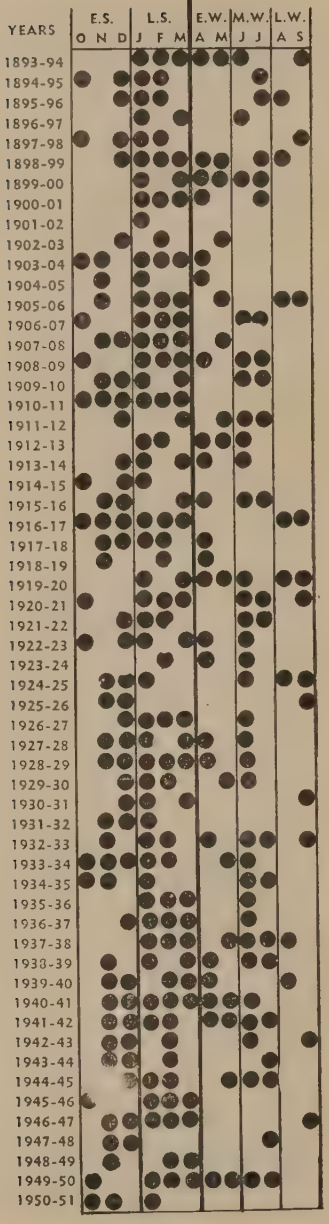


Fig. 33.

EMERALD

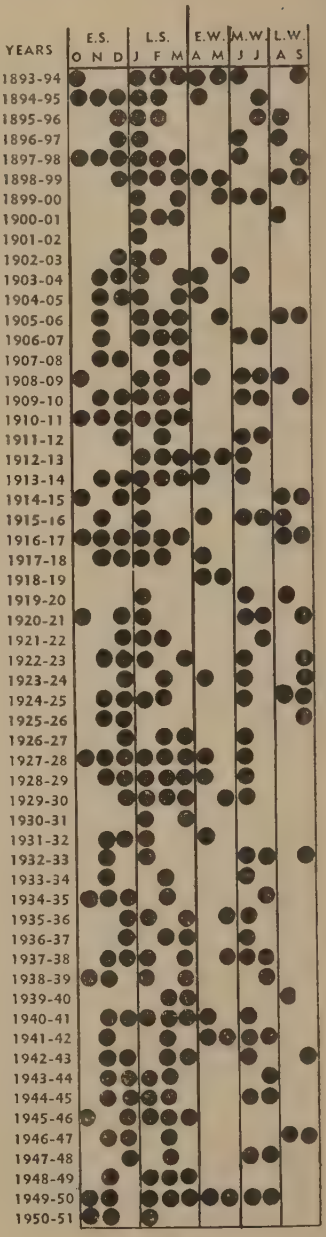


Fig. 34.

SPRINGSURE

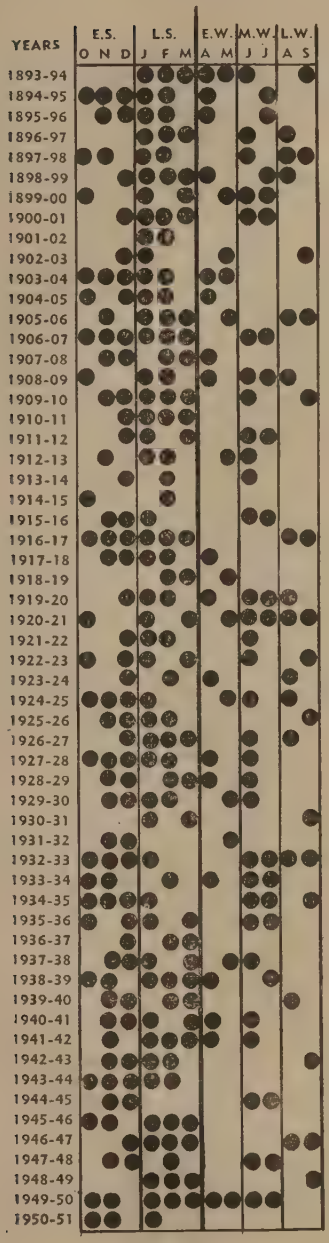


Fig. 35.

TAROOM

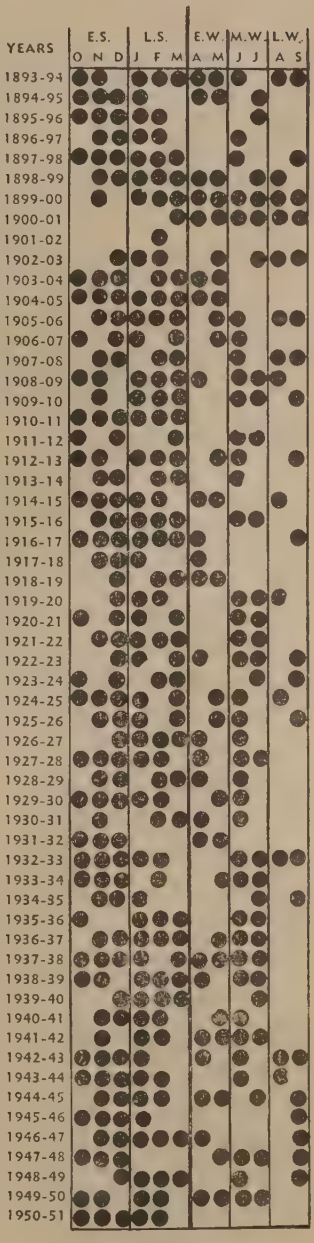


Fig. 36.

YULEBA

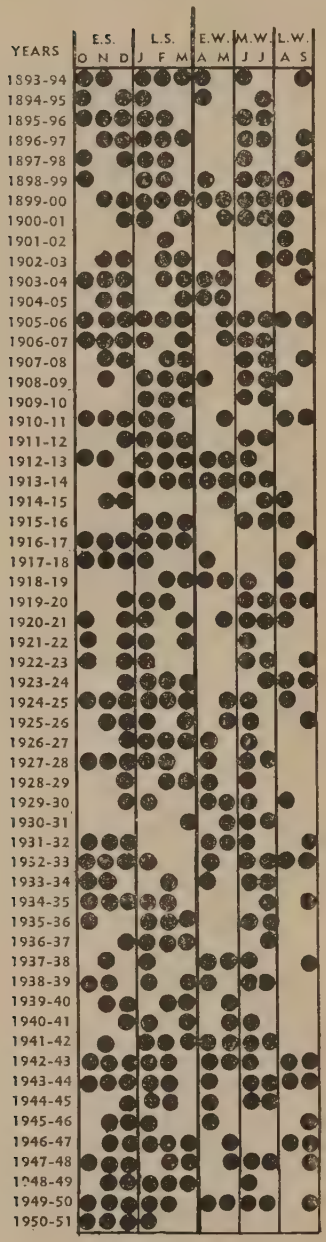


Fig. 37.

MILES

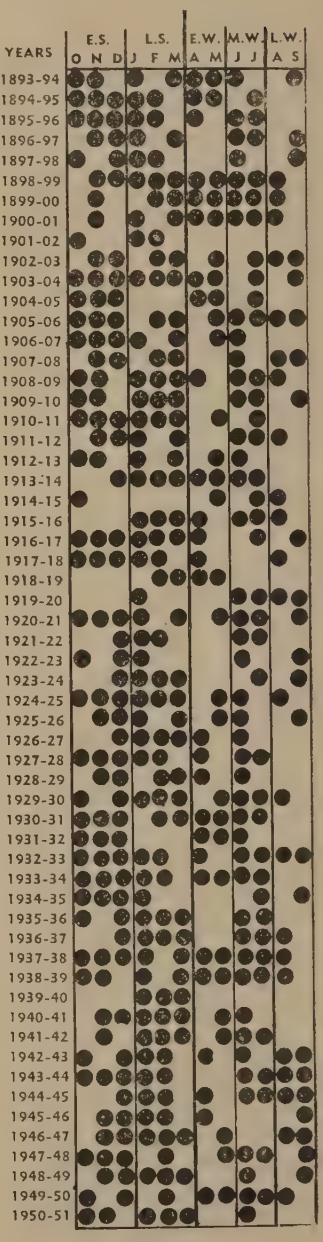


Fig. 38.

DALBY

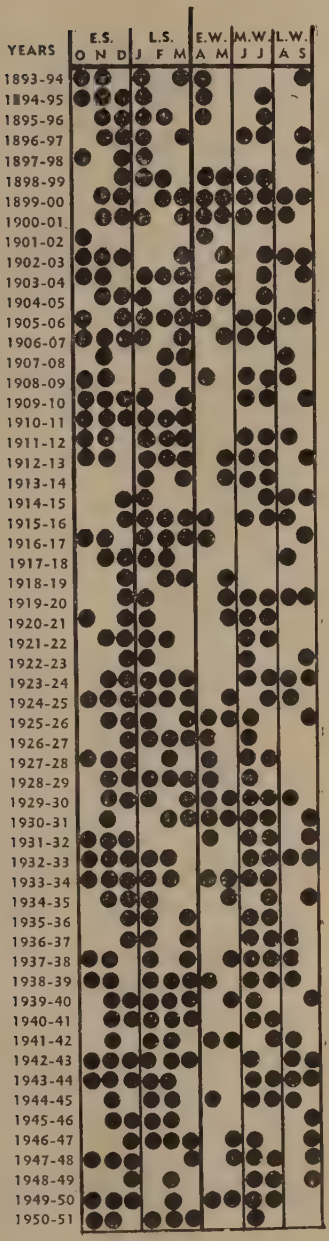


Fig. 39.

GOONDIWINDI

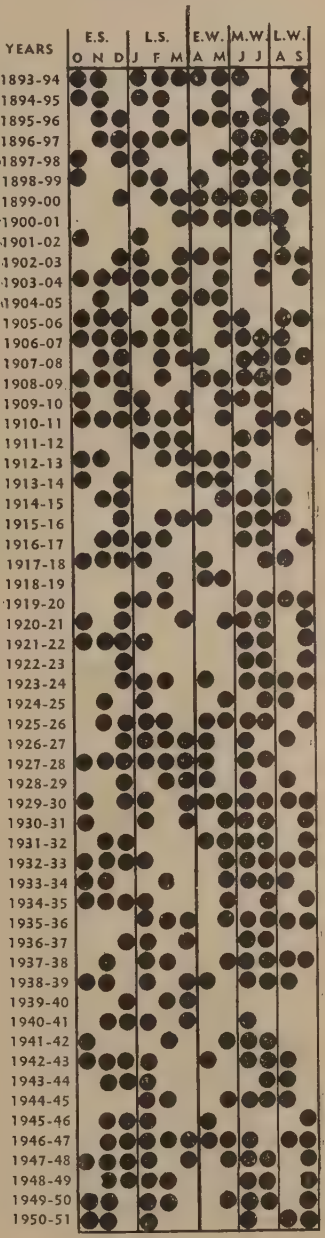


Fig. 40.

PITTSWORTH.

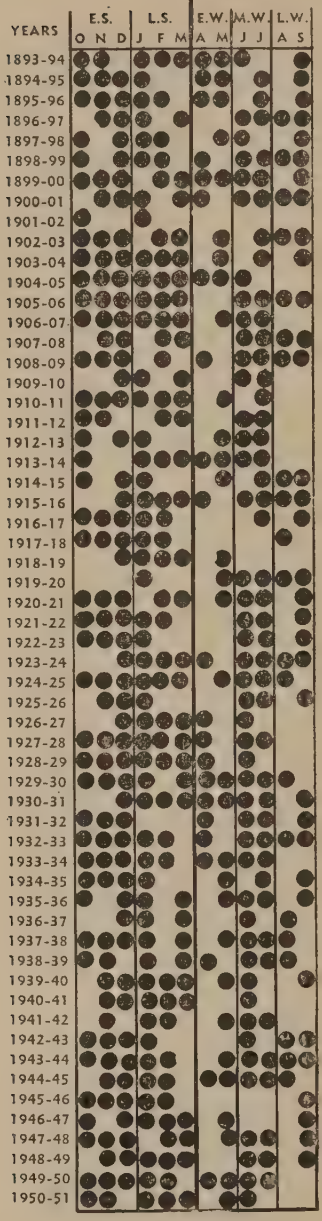


Fig. 41.

WARWICK

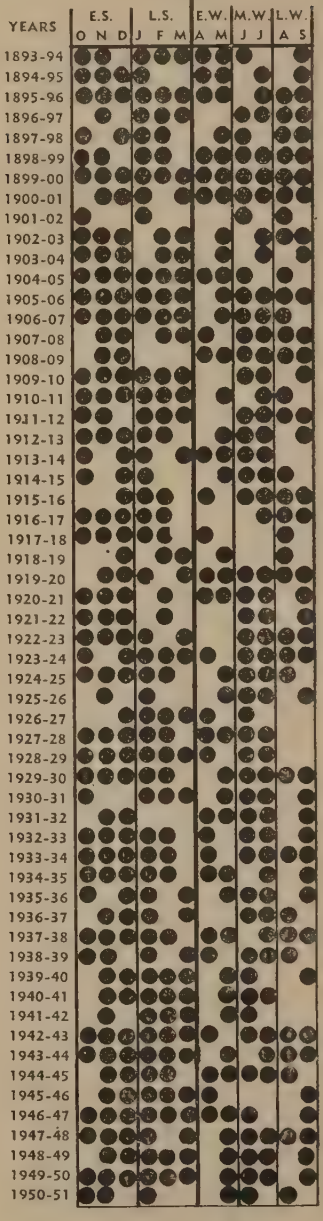


Fig. 42.

WYANDRA

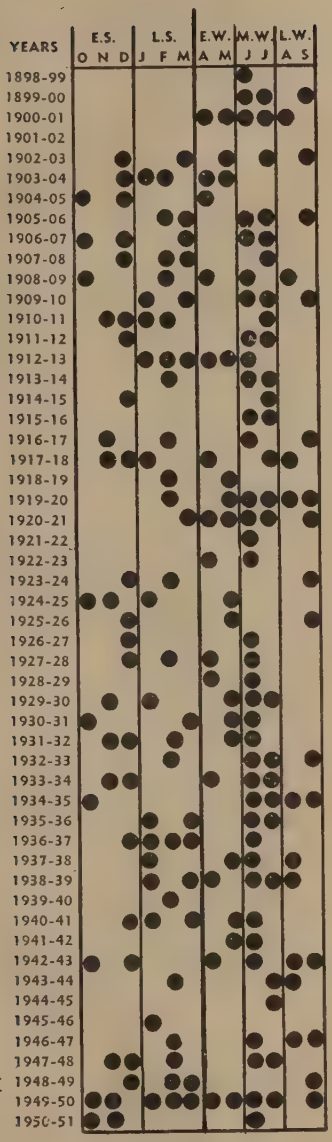


Fig. 43.

LISTOWEL DOWNS

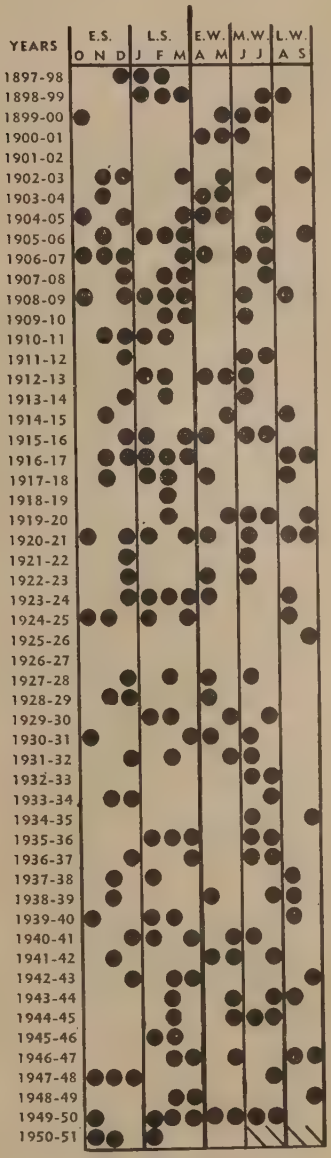


Fig. 44.

BOATMAN

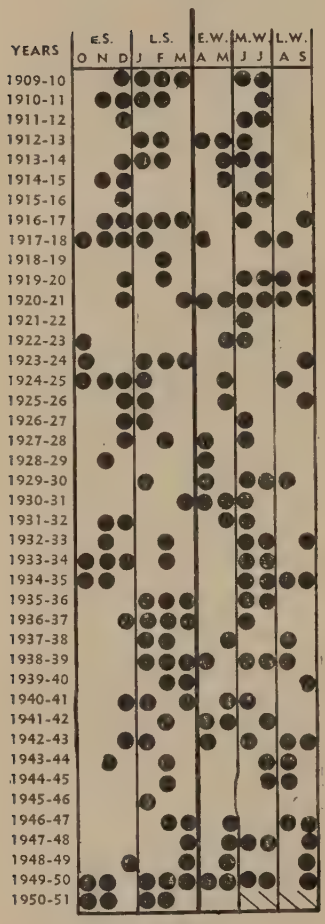


Fig. 45.

THALLON

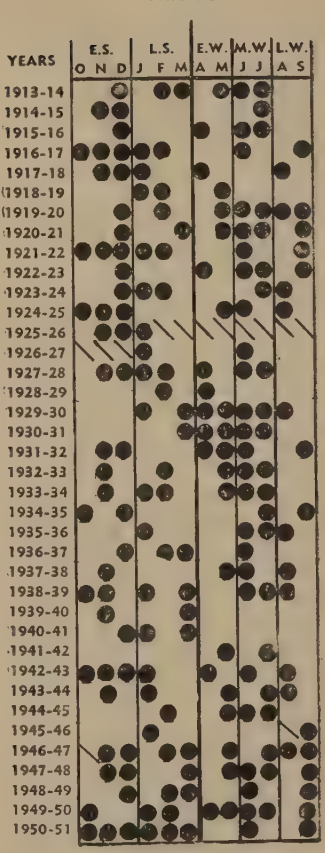


Fig. 46.

TORRENS CREEK

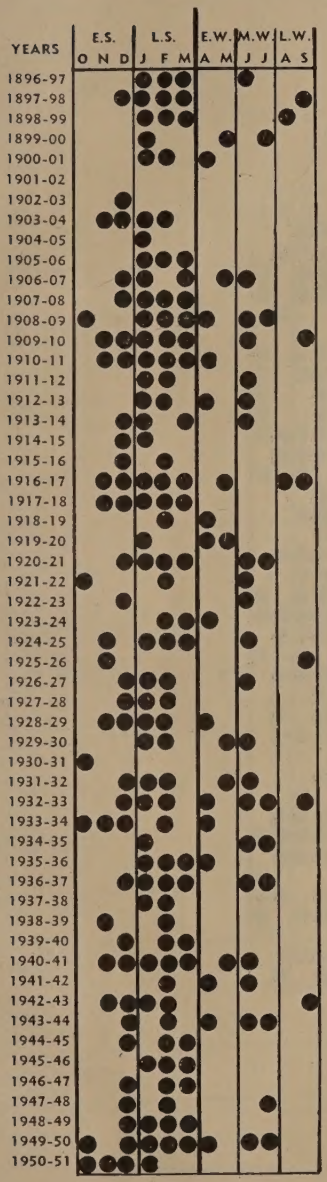


Fig. 47.

JERICHO

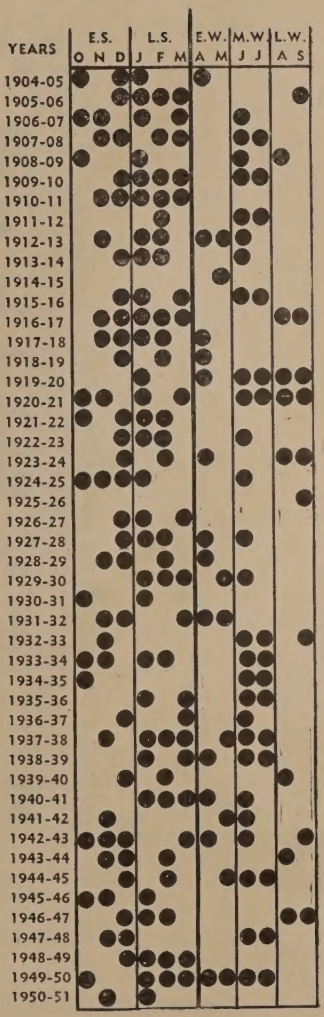
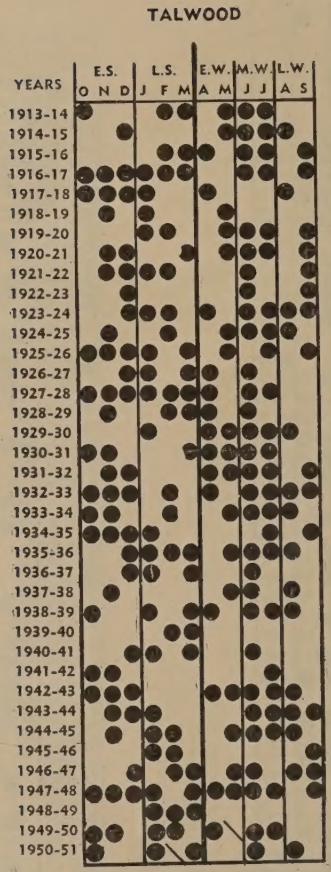


Fig. 48.


TALWOOD
YEARS
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L.S.
E.W.
M.W.
L.W.
O N D J F M A M J J A S
1913-14
1914-15
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1950-51

Fig. 49.

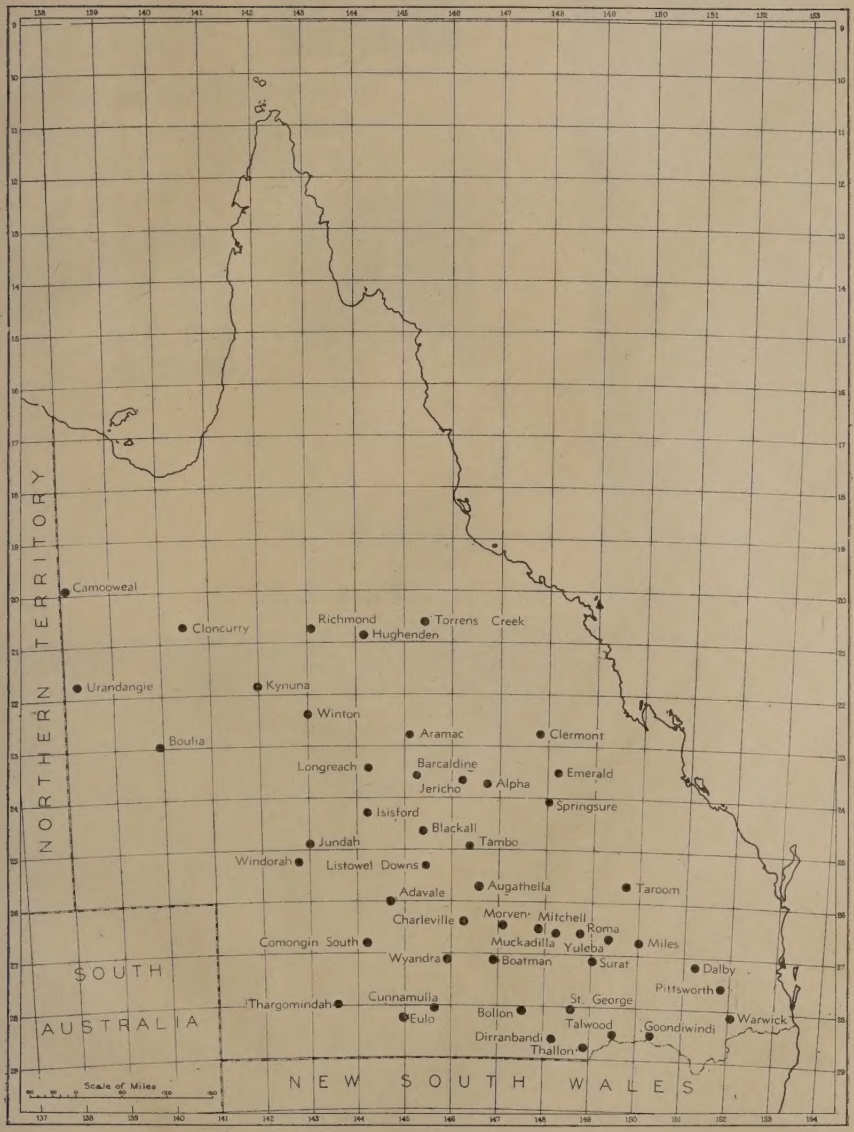

Fig. 50.
Map Showing Positions of Stations for Which Data are Presented.

A. H. Tucker, Government Printer, Brisbane.